

# Network World

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

## Withering on VINES

Banyan looks to replace David Mahoney as its chief, slashes workforce. Page 8.



## Cisco to raise router bar to gigabit speeds

By Jim Duffy  
San Jose, Calif.

During the next two years, Cisco Systems, Inc. plans to offer routers that support multipoint-to-point backbone links and ensure packet integrity even for transmissions that span the globe.

A top Cisco official revealed this and gave other glimpses into the company's high-end routing direction — as well as discussed the fate of its widely installed 7000 line — under an exclusive briefing here.

The company is looking to jack up the speeds supported by its routers to accommodate growing network traffic resulting from Internet access and other applications, said Frank Marshall, vice president and general manager of Cisco's Core

See Cisco, page 16



Cisco's Frank Marshall says the company's routers will support OC-48 links.

## Microsoft previews new NT wares

NT 5.0 directory, security and management tools shown.

By Christine Burns  
Long Beach, Calif.

Microsoft Corp. last week gave customers a sneak peek at a revised Windows NT Server that is better equipped to handle enterprise network demands.

The company gave away preview copies — comprising mostly alpha code — of Windows NT Server 5.0 distributed directory, security and management services to 3,500 attendees at its Professional Developers Conference here.

"The industry has always seen NT as a good application server, Web server and communications server, but with these new services, NT is going to evolve into a fundamental part of the distributed network fabric," said Jim Allchin, senior vice president of Microsoft's Desktop and Business Systems Division.

While these pre-beta versions of NT 5.0 services have limited feature sets and run on NT 4.0, Allchin said they give customers a feel for how much more manageable, scalable and secure distributed Windows NT networks will be in the future. For exam-

### INSIDE NT 5.0

Microsoft Senior Vice President Jim Allchin previewed:

#### Active Directory

Provides end users with a single logon to network resources; can hold as many as 10 million objects per directory store and present them via a hierarchical view.

Microsoft Common Console — Distributed NT Server management framework encompassing Systems Management Server and other applications.

Security services — Private and public key authentication, includes Kerberos and X.509 key certificate support.



ple, the new Active Directory can handle up to 10 million objects — such as end-user profiles and ActiveX application components — per directory store.

The cornerstone of Microsoft's distributed network strategy.

See NT, page 68

By Christine Burns  
Long Beach, Calif.

Moving at Internet speed, Microsoft Corp. last week gave developers an early look at its next Windows NT-based Web server release — just one week after rolling out final beta software for Internet Information Server (IIS) 3.0.

Microsoft's initial plans for IIS 4.0, code-named K-2, are to make it run faster, work better

with X.509 security certificates, and support Internet standards such as HTTP 1.1 and Secure Sockets Layer 3.0, said IIS lead program manager Cameron Feron.

Other sources at Microsoft's Professional Developers Conference here said the Web server will also better meet the needs of large customers and include improved monitoring, analysis and configuration tools.

See IIS, page 16

### GROWING UP FAST

The evolution of Microsoft's Internet Information Server (IIS)

Feb. 12 - Version 1.0

Web, FTP and Gopher services; CGI and Perl script support; Secure Sockets Layer (SSL) 1.0.

Nov. 1 - Version 3.0 (beta)

Active Server Pages; Java Virtual Machine; SSL 3.0 support; NetShow streaming media.



## Developers flock to Domino

By Barb Cole  
Anaheim, Calif.

Funny thing about Lotus Development Corp.'s inaugural Domino Web Developer's Conference here last week: Many of the 1,500 attendees had never developed a Notes application.

But that's just fine with Lotus executives, who once viewed Domino as just a Web add-on for Notes. They now see it as a bridge

from Lotus' proprietary groupware community to the wide world of corporate intranets based on Web standards.

With this in mind, the company sketched out plans to support Java as a means to improve Domino's application development capabilities and enhance Web clients with Notes-like features.

See Domino, page 14

By David Rohde and Tim Greenoe  
New York

The names are different, but skeptical network managers fear the results will be the same.

In offering \$21 billion to take over MCI Communications Corp., British Telecommunications plc is promising a combined company that will better meet customer needs by offering long-distance and international service in one package.

Yet with new rules for competition bottled up in the federal courts and carriers still pulling together international alliances and billing systems, customers wonder how soon the BT-MCI deal and other significant changes to the telecommunications market will benefit them.

"One of the disappointments this year is that we're not getting [more] competition as fast as we expected it," said Matthew O'Brien, president of the Communications Managers Association (CMA).

And so much for one-stop shopping. O'Brien said one CMA member already complained that when it bought AT&T DocFinder in Chicago as a resold Ameritech Corp. line, it

was referred by AT&T to Ameritech when a problem arose.

### BT and MCI in Concert

The BT-MCI deal — which would raise BT's share of the U.S. carrier to its current 20% to 100% — is the latest in a series of events reshaping

See BT-MCI, page 69

http://www.nwfusion.com



Delve deeper into the deal with:

- The latest MCI financial and stock news
- Overviews of earlier MCI-BT joint ventures
- AT&T's take on the merger

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Introducing the  
PowerEdge 2100:  
Redefining the  
entry-level server.

# Investment Banks Jump On Public Offering Of Dell Servers

## 3 of 4 Top Firms Report Improved Network Performance

Wall Street may be feeling a bit queasy, but it's definitely a bull market for Dell.

The Austin, Texas-based computer maker has scored a big hit among some of the largest investment banks with - of all things - its line of PowerEdge servers.

"It might seem surprising," said one source. "When people think of Dell, they think of desktops and portables. But Dell's adherence to open network standards makes their servers a natural on large corporate networks."

It also makes Dell unusual among its competitors, most of whom are only now beginning to abandon their proprietary standards in favor of a more open approach. "I don't want to name names, but companies like Compaq and HP have



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The following could be considered insider information. Run with it.

- Dell is ranked fifth in US server market share
- Dell servers are built in a dedicated ISO 9002 server factory
- Mission-critical server support is provided 7 x 24
- 5 of the top 6 software makers buy Dell servers

- 92% of Dell's \$5.8 billion revenues come from businesses and government agencies
- 5 of the 6 largest automobile makers buy from Dell
- 4 of the 5 largest mutual insurance companies buy from Dell
- 5 of the Big Six accounting firms buy from Dell

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This One



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# 518

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## SPECIAL FOCUS: SERVERS

Enhancements from Intel promise to keep the Pentium Pro processor in step with emerging applications. Page 28.



Oracle's Baker

## FILLING THE GAP

Oracle announcements shed light on a little-discussed aspect of network computers — networked servers. Page 6.



## JAVA TO THE CORE

An interview with Anil Gadre, Sun's marketing VP, reveals company's expectations for Java and the Network Computer. Page 33.



To quickly get to any online info referenced in *Network World*, type its DocFinder number in the input box on our home page.

## This Week

### News+

- **NEW!** We're expanding our daily news coverage. Now, in addition to a daily digest of key networking news, look to NetFlash for in-depth reporting and analysis of major stories.
- **Internet vs. telcos.** Read our exclusive online report about a growing effort by phone companies to charge Internet service providers more because they may be overloading local phone switches — a concern the FCC says may be overblown. **DocFinder: 5012.**
- **Directories.** Dig into Microsoft's upcoming Active Directory with detailed explanations of the components of its architecture and APIs. **DocFinder: 5011.**
- **Web servers.** Grab overviews and primers on HTTP 1.1, SSL 3.0, X.509 and other protocols Microsoft says it will embed in the next version of its Internet Information Server. **DocFinder: 5010.**
- **Notes.** With Lotus planning Java support for Notes servers, take a look at primers that explain JavaBeans and related Java topics. **DocFinder: 5014.**
- **Modems.** Several vendors say they can cut modem costs and make the devices easier to upgrade by using software instead of hardware. Read white papers on these softmodems. **DocFinder: 5004.**

### NetRef

- **Outsourcing.** Download a copy of the chart that accompanies our outsourcing Buyer's Guide (page 43). It's available in both Word for Windows 5.0 and Adobe Acrobat formats. **DocFinder: 5001.**

### HOW TO LOG ON TO NETWORK WORLD FUSION

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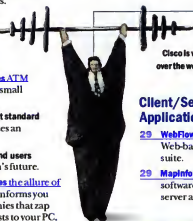
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# FEATURE

*Special Section: To become the architect of a great outsourcing deal, turn to our special section where you'll find a batch of stories on how to identify the players in the market, match those players to your needs and properly manage that relationship. Page 43.*



## News briefs, November 11, 1996

## IBM gets down to E-Business

■ IBM this week will kick its E-Business day in New York, showcasing Web, Java, electronic wallet and cryptologic products it uses to meet customers' electronic commerce needs. Presentations will be made by Irving Bladawsky-Berger, general manager of IBM's Internet Division, among others. Representatives from Charles Schwab & Company, Inc., Knight-Ridder, Inc. and other customers are expected to be on hand.

Separately, IBM last week said it has licensed the Java operating system from Sun Microsystems, Inc.'s JavaSoft division in order to have the option of offering it in future network computers. IBM also licensed the JavaSoft HotBrowser—a specialized browser that developers can use to access Java applets and applications—to evaluate it as a future offering.



Wladawsky-Berger

## Novell makes NT connection

■ Novell, Inc. last week announced availability of its IntranetWare Client for Windows NT, which synchronizes NT 3.5 and 4.0 workstation user names and passwords with Novell Directory Services (NDS). This gives end users single login access to all network services. The client includes support for a new version of Novell's Application Launcher (NAL) technology, which lets users launch applications from a server regardless of their location and allows administrators to centrally control those applications. The client also supports Novell's new Workstation Manager, which lets an administrator centrally manage NT workstations through NDS.

## Tag Switching, you're it

■ The Tag Switching meeting hosted by Cisco Systems, Inc. last week drew 70 participants, including representatives from AT&T, IBM, Bay Networks, Inc., Cabletron Systems, Inc., Cascade Communications Corp., FORE Systems, Inc. and 3Com Corp. These companies "expressed interest in working with Cisco" to standardize and implement Tag Switching, Cisco's scheme for increasing IP network performance, a company spokesman said.

Meanwhile, in the never-ending Cisco/Cabletron Internetwork Operating System (IOS) licensing saga, rumors speculate that Cabletron has to publicly endorse Tag Switching before Cisco reinstates its license for Cisco's routing software. No word was available as of press time on whether Cabletron will bite.

## Shoot-out gets shot

The "shoot-out" between leading enterprise management platforms, orchestrated by the Enterprise Management Institute at its annual Summit conference, has been scrapped. Vendors felt attendance was too low, the test environment too unpredictable, and the reception from spectators and media too skeptical to warrant the lengthy preparation for the competition, said Vishal Desai, area director for the Summit's network and systems management tracks.



## MCI measures up

■ MCI Communications Corp. has signed a deal with Concord Communications, Inc. of Marlborough, Mass., to provide Concord's graphical Network Health-Frame Relay performance and usage reports to MCI's managed WAN customers. Customers will be able to access reports via a secure Web site. MCI is the second carrier to offer the Network Health reports, following Ameritech Corp.

## Ipsilon plays nice with Cisco

■ Ipsilon Networks, Inc. last week said it will ship Cisco Systems, Inc.'s IGRP routing protocol in its IP switching software by year-end. The enhancement is intended to foster seamless integration with Cisco router networks. North Carolina State University is a beta-test site for the new software.

## Oracle sheds light on net computers

By John Cox  
San Francisco

Oracle Corp.'s Network Computer (NC) announcements last week cast a dim light on an unexplored aspect of the "new paradigm" of using low-cost desktop display devices that rely on networked servers for data, processing and applications.

That unexplored area is the networked servers themselves. "We're pushing the complexity off the desktop and into the network," said Oracle Chairman and Chief Executive Officer Larry Ellison at Oracle's Open World conference here. But are corporate networks ready for that complexity, especially given the increasingly distributed and dynamic nature of Internet and intranet technologies?

By pushing complexity back into the network, corporate MIS may face new costs and challenges in ensuring the network computing environment is highly reliable, manageable, and that development groups can make the shift to object-oriented and component software development. All this means work and may take a big bite out of the cost savings Oracle predicts for network computing.

"There are all kinds of services behind [the NC] that you're going to have to purchase," said Larry Binder, a database administrator at Ford Motor Co. in Dearborn, Mich.

To deal with such concerns, Oracle plans to deliver an NC server preloaded with software to handle a range of systems management and administration tasks for client NCs. Oracle showed Developer 2000 for the Web, a version of its application development tool set that will let applications built with the Oracle Forms tool run on the Web.

But both innovations carry potential trade-offs for MIS. Jonathan Stafford, a developer with Air Liquide America Corp. in Houston, said that with the Web version of Developer 2000, a client/server Forms application can be regenerated as, for example, a 100K-byte Java applet downloaded to a browser. The company is interested in the NC approach.

"But to do this, we need to add that middle application server layer," he said. "This net-

work computing approach puts the onus on the people who own the servers and connectivity."

A key part of the NC server—and vital for all useful applications—will be the Oracle7 relational database management system. So the network-centric model of computing, at least in some respects, may be an "Oracle-database-centric" model.

Developer 2000 for the Web is intended to move existing Oracle Forms applications to what Oracle calls the Network Application Server, which includes the Oracle Web Server software but can make use of other Web servers. With support from Oracle's recently announced Network Computing Architecture (NCA), Developer 2000 will separate presentation, application and data access logic into Java applets or NCA cartridges.

But most of those applications were built as LAN-based, two-tiered client/server applications.



Oracle's Baker

—not WAN-based, multi-tiered Web applications. "You can't split processing among different servers, do load balancing, and so on," said Marnie Garmy, vice president of European operations for Passport Corp., a Paramus, N.J., vendor that sells the Passport development tool.

Also, many of these applications rely on application logic written in Oracle's proprietary PL/SQL language and kept in the database as stored procedures. One result could be moving needlessly large amounts of HTML documents, SQL data or both between the NCs.

Oracle makes no apologies for linking Oracle7 so tightly into the NC environment. "We're leveraging this on the NC server side as much as we can," said Jerry Baker, president of Network Computer, Inc., an Oracle subsidiary. "This is not an issue for the customers we're talked to. In the future, we might make the NC server software stack portable [to be used with other database brands]." ■

## Vendors form clustering co-op

By John Robinson

Tandem Computers, Inc., continuing efforts to shake its proprietary image, last week announced a partnership with Pyramid Technology Corp. to develop a clustering standard for Unix and Windows NT servers.

The companies will study each other's clustering technologies and integrate the best features into interconnect hardware and software, officials said. Plans call for a codeveloped standard API that will allow Windows NT and Unix servers, from these and other vendors, to share applications in a clustered environment.

Tandem brings its ServerNet clustering technology to the table, most recently optimized for Windows NT (NW, Oct. 28, page 10), while Pyramid brings its Mesh Interconnect hardware for Unix systems.

Products resulting from the partnership could appear next year, the companies said.

The agreement has the support of server heavyweight Compaq Computer Corp. and

database giant Oracle Corp., NEC Corp., Dell Computer Corp. and 11 other server manufacturers are also supporting the standards effort. In addition, as part of the agreement, Pyramid parent company Siemens Nixdorf Informa-

## Download more cluster info, including:

- An overview of Tandem's ServerNet technology
- White papers from other cluster vendors
- A report on how to shop for clustered servers

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tions Systeme AG will incorporate Tandem's ServerNet technology into its Primergy line of Windows NT servers.

Brad Day, senior analyst with Giga Information Group in Boston, said the announcement represents a shift in industry interest from Unix to NT systems. "This is another example of the [transformation] of traditional Unix clusters toward NT, and using the best aspects of Unix products in [NT systems]," he said. ■



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## 3Com shoves fat ATM loads down thin pipes

AccessBuilder 9010 and 9300 devices are first fruits of OnStream acquisition.

By Tim Greene

Santa Clara, Calif.

3Com Corp. is set to release two offerings that let users economically transfer the high-volume traffic from their local ATM networks over the wide area.

networking more affordable by letting users provision smaller and dramatically less expensive wide-area links, said Thomas Nolle, president of CIMI Corp., a technology assessment firm in Voorhees, N.J.

ATM inverse multiplexing. That gives users access to more bandwidth without having to make the jump to a full T-3 link, which operates at 45M bit/sec.

AccessBuilders are the first fruit of 3Com's recent purchase of ATM remote access specialist OnStream Networks, Inc. Both support 3Com's Transcend network management system and plug the ATM gap in 3Com's wide-area line. The boxes can take in LAN traffic at 155M bit/sec, or OC-3, and drop it onto much smaller links because of traffic-shaping technology OnStream brings to the table.

The traffic-shaping technology includes buffers for 70,000 cells, early packet discard and bandwidth reallocation features that let underutilized virtual circuits pick up traffic from those bursting over their bandwidth allocation.

Available during the first quarter of next year, the AccessBuilder 9010 costs about \$6,000 and the 9300 costs about \$10,000.

☎3Com: (408)764-5000.

### 3COM'S NEW HIGH-VOLUME TRAFFIC OFFERINGS

#### Product:

#### AccessBuilder 9010

**Features:** Standard ports: one Ethernet, one serial data and one T-1 ATM. Optional card (one slot): T-1 constant bit rate (CBR).

**Base price:** \$5,950

#### AccessBuilder 9300

**Standard ports:** one serial, one Ethernet and one T-1 ATM. Optional cards (three slots): T-1 ATM, T-1 CBR and OC-3 ATM. Other: Stackable with SuperStack II products.

**\$9,950**

The company this week will announce the AccessBuilder 9800 and AccessBuilder 9010, which can pump up to 155M bit/sec of local traffic across wide-area ATM links ranging in speed from 1.5M to 6M bit/sec.

That makes end-to-end ATM

"No one is going to buy [wide-area] ATM at 155M bit/sec. If we wait for that, we'll all starve to death," Nolle said.

While the smaller 9010 features a single T-1 port, the 9300 can blend as many as four T-1 links into a 6M bit/sec pipe using

## Shareholders, users ponder Banyan's future

By Chris Nerney

Westborough, Mass.

With the resignation last week of Banyan Systems, Inc.'s top executive, the troubled firm has an opportunity to recast its strategic plans, but shareholders and analysts said it may be too late for the company.

David Mahoney, who resigned as Banyan's chairman, president and chief executive officer, cofounded the company in 1983. Banyan was an early technology leader in the network operating system market, but Mahoney had been criticized in recent years for failing to aggressively market Banyan's products.

"Banyan was a technology company run by engineers. The results have shown," said stockholder Jerrold Patz, a senior consultant for CompuCom Systems, Inc. "Superior technology is no match for superior marketing."

John Burton, a Banyan director since 1991, was named chairman and will direct the search for a CEO to replace Mahoney, who will become vice chairman of the board.

In announcing the executive

changes, Banyan also said it will eliminate the jobs of 100 of its 725 workers worldwide and take a pretax charge of \$3 million to \$5 million in the fourth quarter, for which it predicts a loss.

It would be the fifth loss in the past seven quarters for Banyan,

indicating the company is willing to adopt a new vision.


Martin Smith, president of the Federal Banyan Users Group, said, "Banyan still has a better understanding of the needs of the big company than the competition."

None of that matters much to William Ifrah, a Banyan shareholder who, along with Patz, organized a stockholder uprising against Mahoney last spring. "I hate to be overly pessimistic, but I'm not sure how much Banyan has left to salvage," he said.

Thursday's announcement reignited rumors that have been floating around for months that Banyan could be bought out, with Microsoft Corp. and Cisco Systems, Inc. heading the short-list of potential purchasers.

"A buyout is what everybody's hoping for," Patz said. "The shares are valueless."

NW Fusion writer Todd Wallack contributed to this story.



**MAHONEY'S LEGACY**

- ☛ Cofounded Banyan in August 1983.
- ☛ Promoted the VINE network operating system and Banyan's age in the hole, the StreetTalk directory service.
- ☛ Oversaw IPO of common stock in August 1992.
- ☛ Was unable to stop declining revenue (\$88.3 million for the nine months ending Sept. 30, down from \$101.7 million for the same period in 1995).

whose stock price has dropped from about \$18 per share in June 1995 to just over \$3 today.

The heads of two Banyan user groups expressed hope that the company will get back on track.

Michael Linenburger, president of the Association of Banyan Users International, said Mahoney's departure is "a posi-

### Standards

## Gigabit Ethernet camp removes an obstacle

By Joel Cohen

Vancover

The Gigabit Ethernet standards committee doesn't want to bite off more than it can chew.

That's why the group, known as the IEEE 802.3z Gigabit Task Force, this week is expected to spin off the long-distance copper portion of its specification in order to focus on less complicated interfaces, such as fiber and short-haul copper.

The long-haul standard, which works on Gigabit Ethernet

manager at Cisco Systems, Inc. and vice chairman of the Gigabit Ethernet Alliance, agreed. "The technical issues [regarding long-haul copper] are significant enough that it probably would take a year or more to work through those, so we'd be looking at delaying things for a long period of time," he said.

#### The long and short of it

There are two copper solutions being worked on by the Gigabit Task Force in addition to

### GEARING UP FOR GIGABIT ETHERNET

Can't get enough information about Gigabit Ethernet? Check out these upcoming industry events.

#### ▶ IEEE 802.3z Gigabit Ethernet standard working group meeting

Vancover

Nov. 11-15

**Key issues:** Last opportunity to submit technical changes to the standard. Also, the long-haul copper part of specification is expected to be broken out into a separate group so fiber can receive the group's full attention.

#### ▶ Next Generation Networks conference

Washington, D.C.

Nov. 11-13

**Key issues:** Gigabit Ethernet pioneers, new industry alliances such as the Gigabit Ethernet Alliance, and debating the desktop interface: ATM vs. the many Ethernets.

#### ▶ Gigabit Ethernet Alliance meeting

Santa Clara, Calif.

Nov. 13

**Key issues:** Membership meeting to discuss educational and press activities for the next six months.

#### ▶ Gigaset: Gigabit Networking and Systems Conference

Santa Clara, Calif.

Nov. 16-20

**Key issues:** Gigabit Ethernet implementation, interoperability and market prospects. Also, evaluation of technology alternatives.

over 100 meters of Category 5 unshielded twisted-pair (UTP) wire, will become a separate project within 802.3 to be completed sometime down the road, according to Howard Frazier, chairman of the IEEE 802.3z Gigabit Task Force.

The move will expedite completion of the basic standard, which otherwise could have been significantly delayed, industry observers said. Even so, the standard is not expected to be completed until early 1998.

"This is an opportunity to get the [basic] standard done sooner so that Gigabit Ethernet can get into the market earlier," said Bernard Daines, president of Packet Engines, Inc., a Gigabit Ethernet vendor in Spokane, Wash. "This way, most of the technical work will be set in January, and we won't have to hold up the standard to wait for a copper solution to come along."

Nathan Walker, product-line

the fiber interface being developed. One is short-haul copper for connecting equipment over short distances — about 30 meters — on coaxial cable. This is based on Fiber Channel technology, which should evolve relatively quickly without too much research, analysts said.

There is also a long-haul copper specification that addresses Category 5 UTP cabling at 100 meters for less expensive long-distance links. However, there are significant technical issues having to do with digital signal processing and the choice of cable that will require some time to be sorted out, Walker said.

Some vendors — such as Lucent Technologies, Inc. — are focusing on long-haul copper products, and analysts said they are no doubt disappointed that the committee is not willing to risk moving aggressively forward with that portion of the standard. ■



“Getting all my

networks to work

together is like

trying to organize

a plate of

spaghetti.”



If you read the papers you know something's up at IBM Networking. There's been a drumbeat of new product announcements. Whispers about technology alliances and closer ties with key resellers. And bullish reviews of something called Switched Virtual Networking.

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# 'NET BUZZ

The latest on the Internet/intranet industry.

By Chris Nerney

## TURN RIGHT PAST THE JUGGLER

Every fall, dozens of small companies swagger into Las Vegas for Comdex, naively confident that their ground-breaking technology will wrench the spotlight from those marketing-sleazebag corporate giants whose glitzy presence demands an otherwise dignified event.

Several days later, they sink out of town, unnoticed and disillusioned, vowing to return next year with a hefty budget for leggy spokesmodels.

In an effort to help small Internet companies compete on the trade show floor, next week's Comdex will feature an Internet Innovators Pavilion, where privately held firms can display their 'Net-related systems, products or services. No clowns, no balloons, no comics—just a glimpse of the Internet products of tomorrow. The Pavilion will be next to the convention center, across from the registration area.

## COMING NEXT: NEWS BUREAUS IN YOUR BRAIN

Some people just can't get enough news. Unfortunately, all that channel- and Web-surfing for the latest updates can be time-consuming.

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## SHARE THE WEB, NOT SALES REPS

Last week was a busy one for Radnet, Inc. The company unveiled a new version of WebShare, its groupware development tool for corporate intranets, that can be used with both Microsoft Corp. BackOffice and Netscape Communications Corp. SuiteSpot.

Radnet also announced that it is being sued by the Lotus Development Corp. unit of IBM, which alleges that Radnet Chief Executive Officer Don Bulens, a former Lotus sales president, illegally recruited a Lotus sales executive. Radnet officials called the lawsuit frivolous.

## HOT PURSUIT

Minneapolis-based IntraNet Solutions, Inc. isn't wasting time in its bid to buy a \$3 million printing and graphics communications firm located in the Southwest. IntraNet filed a letter of intent last week to buy the unnamed company. Chief Financial Officer Jeff Spjueck said IntraNet hopes to wrap up the deal "in a couple of weeks," at which time the identity of the company will be revealed.

The acquisition will allow IntraNet to expand its Web-based document distribution market, company officials say.

Got a scoop that will rock the Internet/intranet world? Spill your guts to Chris Nerney at (508) 820-7451 or [cneryne@nwsun.com](mailto:cneryne@nwsun.com).

# HP to get OpenView in sync

Will coordinate release of network, systems, storage and application management tools.

By Jim Duffy

Sanita Clara, Calif.

Hewlett-Packard Co. next year will unveil a major release of OpenView products that work better together and can be accessed from Web browsers.

In a departure from its staggered product release strategy, HP will synchronize new editions of its network, systems, storage and application management offerings, said Olivier Helleboid, general manager of HP's Network and Systems Management Division in Fort Collins, Colo.

HP's staggered release system has created a situation in which a version of one product could not take advantage of the latest features and functions of another. OpenView customers now are finding, for example, a lack of applications that can make use of OpenView Network Node Manager (NNM) 4.1's distributed capabilities, despite the fact it has been shipping since April.

"We're getting a lot of feedback from customers that the products aren't synchronized," Helleboid said after delivering a keynote address at the Enterprise Management Summit here last week.

Helleboid referred to the upcoming products as "a major integrated release" of Open-

View that will ship in mid-1997 and include the Galaxy version 1.0 (NW, Sept. 30, page 1), IT/Operations and IT/Administration.

This release will also include the OmniBack II storage management application and the Software Distributor application dispersal package, according to Pam Peterson, HP's OpenView program manager.

Customers will be able to access each OpenView function in this release through a Web browser, Helleboid said. Currently, users can access NNM, OmniBack II and Software Distributor through Web software that HP offers on the Internet.

"Clearly, the Web is becoming a key part of our user interface," Helleboid said.

In addition to better aligning its own products, HP is looking to better synchronize third-party

applications with OpenView. HP delayed shipment of the software developers' kit for NNM 4.1 and,

as a result, versions of key third-party applications—such as Bay Networks, Inc.'s Optivity and Cisco Systems, Inc.'s Cisco Works—up for the distributed OpenView are still not available. Software vendors were late getting the kit because HP was a year behind schedule shipping NNM 4.1, according to Helleboid.

"It was a scramble. We were pressured on time to get it out. So we decided to get [NNM 4.1] out there [and worry about the developers' kit later]. It's not the ideal model," Helleboid said.

"It was a scramble," he said. "We were pressured on time to get it out. So we decided to get [NNM 4.1] out there [and worry about the developers' kit later]. It's not the ideal model. Most [third-party vendors] will have a solution available on 4.1 by the end of the year."

HP is also behind schedule on delivering a final version of NNM on Windows NT, now slated for release in early 1997, Helleboid said. Some 200 beta copies went out last week, he added. ■

# Dataware readies HTML/CD-ROM publishing manager

By Ellen Messner

Cambridge, Mass.

Dataware Technologies, Inc. this week will unveil its Electronic Publishing Management System (EPMS), which enables

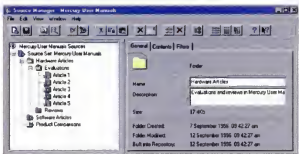
packages such as WordPerfect or AmiPro, composition software such as FrameMaker, as well as groupware and database systems, and then converts the different formats into HTML.

expensive."

Dataware's EPMS has an internal scheduler that can automatically collect information over an IP network to convert to HTML for publication on the Web, said Dataware Vice President Bill Thornburg.

The package also comes with the EPMS Internet and Intranet Server, search engine and auditing software that lets managers set up security controls on files and track usage. Now in beta, the product is expected to ship by year-end and will cost \$15,000.

©Dataware: (617) 621-0820.



The Dataware Electronic Publishing Management System takes a variety of formats and publishes them to HTML or CD-ROM.

intranet or Internet administrators to take information from a variety of applications and publish it in HTML or other formats.

The Dataware system for Windows 95 or NT accepts information from word processing

"There's a need for this kind of central repository," said Dave Folden, administrative systems coordinator at Pillsbury Co. "A lot of corporations are building this kind of application themselves, which is difficult and

## CORRECTION

The telephone number in a recent story about UUNET Technology, Inc.'s Merchant Server electronic commerce service was incorrect.

The accurate number is (703) 206-5000.



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# Zoomit creates order out of chaos

Via meta directory is ready to ship; accessible using Web browser and LDAP clients.

By **Barb Cole**  
Toronto

Zoomit Corp. this week will take the wraps off software that could make order out of running multiple directories on an enterprise network.

The company will roll out Via software that gleans data from network operating

systems, the Internet, E-mail systems and other applications to create a single meta directory. Information in Via is accessible from Web browsers and other Lightweight Directory Access Protocol clients.

Via was created to solve a common problem in large organizations: Workers typically have different identifications in

different directories. This makes it hard for end users to easily get accurate information about one another, and requires administrators to maintain multiple directories.

The software could be described as the next generation of directory synchronization products, which typically copy directory information from several sources into one directory.

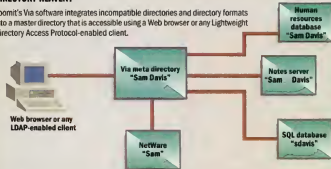
While traditional directory synchronization software copies information one-way, Via supports bidirectional replication.

In addition, while directory synchronization software generally duplicates entries, Via creates entries based on information gleaned from directories and user-defined parameters.

The server-based software could also prove easier to manage than traditional directories. The software relies on management agents to propagate changes in the original directories to the meta directory.

## DIRECTORY HEAVEN?

Zoomit's Via software integrates incompatible directories and directory formats into a master directory that is accessible using a Web browser or any Lightweight Directory Access Protocol-enabled client.



Via also comes with built-in password security and lets administrators assign access rights down to the attribute level.

While Zoomit is likely to face competition from larger organizations such as Lotus Development Corp.'s SoftSwitch division, the company comes to the meta directory party early. Several vendors have similar offerings in the works, but none is expected by year-end.

Beta testers were impressed with Via and said it could have broad applications in the enterprise.

"Like any organization, we have directories all over the place, so any way to pull this stuff together is a boon," said Terry Mitchell, architecture planning analyst at Consumers Gas Co. in North York, Ontario, which used Via to integrate directories from Lotus cc:Mail and Notes, Novell, Inc. NetWare and Sybase, Inc. databases.

Via runs on Windows NT and supports NetWare 3.1, Banyan Systems, Inc. VINES, Notes, cc:Mail, Windows NT and Exchange. A tool kit is included for building custom management agents. Via costs \$2,500 and comes with two management agents and 250 free user licenses.

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## Domino

*Continued from page 1*

Company officials also talked up a series of other Java initiatives, ranging from the ability to execute Java applets in the soon-to-be-released Domino 4.5 to full support of the JavaBeans component architecture in future releases of Domino servers and Notes clients.

Lotus also announced plans to offer either Netscape Communications Corp. Navigator 3.0 or Microsoft Corp. Internet Explorer 3.0 in a bundle with Notes clients.

### Jumping into Java

Java support means that Web developers can deliver Java-based applications to either Notes clients or Web browsers accessing Domino servers.

Down the road, Lotus will allow Java clients to access Domino application services as well as add support for the Java Database Connectivity protocol. This move exposes Domino's object store, security, messaging and other application services to Java developers.

Lotus also plans to deliver next year a series of Java applets that render some of the rich functionality of the Notes client — such as sophisticated views and form layout regions — in Web browsers.

This solves a sticky problem faced by Domino developers.

To deploy, they must choose whether to deploy on the Notes client or a Web browser before they build an application because Web browsers do not support the same client functionality as Notes clients.

Similarly, if you want HTML attributes in a Domino application, you write

them, but they don't show up in a Notes client," said one developer at the conference.

Jairo Garcia, a Notes administrator at the Dallas office of Johnson & Johnson that has started moving some applications to Domino, applauded the Java plan. "This will save us money because browsers are cheaper than Notes clients and don't require as much desktop computing power," he said.

Some users said the move could result in the extinction of the Notes client, but Notes officials said there is still lots of

**Lotus' Rudden defends the need for a Notes client: "A lot of companies want to deploy Domino applications using Web browsers, but that doesn't represent the entire market."**

demand for it. In many companies, TCP/IP to the desktop is not a given, said Eileen Rudden, senior vice president of communications product development at Lotus.

One Notes administrator at a large electronics firm, however, said he regretted his recent purchase of several hundred thousand dollars' worth of Notes client software after hearing the announcement.

Lotus is expected to continue its Java blitz at Comdex later this month where it will announce plans to support Java in its SmartSuite applications hosted on Domino servers. ■

## Pentium Pro systems

## Digital expands Prioris server line

Bundles box with server management and ease-of-use features.

By John Ross

Maynard, Mass.

Digital Equipment Corp. this week will fill out its Prioris server family with a low-cost application server that boasts management and ease-of-use features.

The Prioris HX 6000 is available with one or two 200-MHz Pentium Pro processors, and 512K or 256K bytes of Level 2 cache.

The product sits snugly between the Pentium-based Prioris HX 5000 and the four-processor Pentium Pro-based Prioris ZX 6000. Digital is positioning the server to run E-mail, groupware, intranet and database applications, filling a void in the Prioris line.

The server comes bundled with ServerWorks Manager, which monitors server components and allows network administrators to remotely manage the box.

Other features include Digital's QuickLaunch software, which can install an operating system in less than 20 minutes, company officials said. Quick-



Digital's Prioris HX 6000 is a low-cost application server that features built-in management capabilities.

Launch can also replicate the installation process to other servers in a network.

The HX 6000 has 1GB of ECC memory and 63G bytes of internal storage. External storage can be expanded to 1 terabyte of data. The server includes six PCI slots and five EISA slots.

The HX 6000 is priced between \$6,000 and \$10,000, depending on the number of processors and cache.

©Digital: (508) 493-5111.

## Advertisement

## Why Distribute LANE Services?



By Mike Kazar

The ATM Forum LAN Emulation standard requires the support of the hosts in the network and three network services: LAN Emulation Configuration Service (LECS), providing configuration information to the hosts; LAN Emulation Service (LES), providing MAC-level address resolution; and Broadcast and Unknown Service (BUS), forwarding broadcast traffic to hosts in an emulated LAN and limiting the amount of unicast traffic.

Although most LANE services today are implemented on a single machine, a distributed LANE Network-to-Network Interface (LNNI) solution has many advantages:

With a distributed solution, no single point of failure exists for an emulated LAN. If a member of a distributed LANE BUS crashes, clients of that service simply reconnect to another machine serving the same LAN.

A distributed solution reduces the number of clients connected to any given server and as a result, the number of virtual circuits (VCs). When more than one LANE service is in operation for an LAN, each host still connects to only one machine. This allows the VC load to be shared among all available LANE service machines.

Regarding multicast performance, LNNI can't reduce the load on the BUS, but it can reduce the VC load.

Finally, a good LNNI implementation reduces the number of machines, both hosts and services, that actually receive unknown traffic. Unknown traffic is traffic intended for one machine, but is sent via the BUS to all machines because a direct VC has not yet been setup.

Since all but one machine discards the unknown traffic, it is inefficient for those machines to receive and discard this data. An intelligent BUS identifies the intended machine by consulting the associated LES. In some cases, intelligent BUS optimization can reduce BUS loading.

The goal is to spread the load from the LANE clients as evenly as possible among the distributed LANE services. This makes it easier to add more clients without affecting performance and eliminates a single point of failure.

In its LNNI implementation, FORE pioneered many of these advanced features and they are available today, on ForRunner ATM switches, PowerHub LAN switches, and ForRunner ATM adapters for SunOS platforms.

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## IIS

Continued from page 1

IIS, a free product that comes bundled with Windows NT Server, is gaining ground on the leading commercial Web server line from Netscape Communications Corp. According to Netcraft, Ltd.'s Web server survey, Netscape products were running on 14% of sites polled in October, while IIS ran on 9.5%.

Improving IIS's performance is a given, Ferroni said.

"We want to make the server piece as thin as possible so that the system resources are put to better use by the dynamic, Web-enabled applications that are now being built," he said.

As for security, initial support for X.509 certificates is included in Version 3.0. This lets the Web server request a certificate from any client hitting it before that client can actually use the site. This feature is useful for tracking users, Ferroni said.

The key X.509 feature missing from IIS 3.0 is the ability to map certificates to Windows NT accounts on the internal network. This mapping — which is also ex-

pected to be a feature of the distributed security service in NT 5.0 — would give the clients access to predefined resources. This cases administration because a Webmaster can hand out a standard certificate to multiple users that have rights to access similar resources.

"Not only do you get all the benefits of NT security, but you get the many-to-one benefits of being able to request the certificate from the client," Ferroni said.

This added support also simplifies end-user access, because they will only have to register with a site once and then can gain repeat access without having to remember multiple user names and passwords.

Support for HTTP 1.1 will give an IIS administrator the ability to post and delete Web files via that protocol. The updated protocol also supports an enhanced caching capability for proxy servers connected to an IIS server.

Ferroni added that K-2 will support any other "Net protocols that emerge as standards over the next six months."

The code is only in its alpha stage, and dates for the beta cycle and delivery have not yet been determined. ■

## Cisco

Continued from page 1

Products business unit.

"Our goal is to build a product that will take us to OC-48 [2.56 bit/sec] in a non-blocking fashion," Marshall said. "We have OC-48 to start, but what you do is build an infrastructure that can take you to that bandwidth."

That infrastructure will most likely start out with 622M bit/sec OC-12 links under the Cisco project analysts refer to as Big Fat Router (BFR). Currently, Cisco 7500 routers support links up to 155M bit/sec.

BFR will take advantage of the Cisco 7500 line's Reduced Instruction Set Computing-based integrated route/switch processor and distributed I/O switching architecture, Marshall said.

"Think of a centralized intelligence [engine] for creating the original routing tables or updating the tables," he said. "And then [think of] intelligent I/O processors that have the proper packet-per-second switching capability and the proper buffering, based on what the interface is connected to."

Buffer size is a key consideration for these I/O modules because at 622M bit/sec — or even 2.5G bit/sec — they can fill up fast.

"There's a lot of discussion going on about what's the proper amount of buffering [needed so as not to] drop packets in a transonic link running OC-12," Marshall said.

"We're going to keep memory suppliers in business for a long time," he said.

As for the BFR backbone, Marshall is leaning toward a switching matrix as opposed to the 7500's bus-based design.

The first release of BFR is expected in the second half of 1997.

## Sayonara 7000?

Cisco may also end sales of its 4-year-old Cisco 7000 backbone router at that time, Marshall said.

The 7000 is based on a segregated route/switch processor design that lacks the distributed I/O switching of its 7500 successor. Yet the 7000 is widely installed, and customers have expressed concern over its future since the emergence of the 7500 and 7200 (NW, July 1, page 17).

Currently, Cisco offers customers an upgrade path whereby they can stuff a 7000 chassis with a 7500 processor and interface modules for around \$10,000 to \$14,000. Modules for the 7000 can also be migrated to a 7500 chassis.

But the 7000 modules cannot optimize the 7500's integrated route/switch processors, Marshall said.

They can, the 7000 will be ready for retirement.

"Once the two route/switch processors in the 7500 can improve the packet processing capability of legacy [7000] interfaces... then I will have a complete set of functionality that obsoletes the 7000," Marshall said.

Customers were not surprised — or thrilled — with the news about the 7000.

"It leaves people in the lurch and forces an upgrade," said James Weidert, director of networking at the University of Southern California in Los Angeles. "They have to do something to make it bigger, better and faster. But I wish they designed it right in the first place. I hate forklift upgrades." ■



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# WANS & Internetworking

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## Briefs

■ **Cisco Systems, Inc.** has unveiled a number of high-end router enhancements to improve bandwidth utilization, security and access.

For bandwidth utilization, the company rolled out the **Compress Service Adapter (CSA)**, which enables central site routers to aggregate the compressed datastreams from multiple remote site routers. A single CSA, priced from \$8,000 to \$14,000, can increase the compression capabilities of Cisco 7500 series routers from 10 to 20 times, according to the company.

For security, Cisco announced the capability to distribute its **Internetwork Operating System** encryption services to the **Version 2.0 Interface Processor Model 2-40**. This feature is priced from \$3,400 to \$7,000.

As for access, Cisco unwrapped eight port serial, channelized T1 and single and dual port High Speed Serial Interface modules for its high-end routers. These modules are priced from \$8,000 to \$55,000.

All products are available now. Cisco: (408) 526-4000.

■ **Canadian PBX maker Mitel Corp.** last week unveiled what it claims is the first plug-and-play form of desktop computer-telephone integration.



The Mitel Personal Assistant package costs \$349 and will be generally available in January.

Mitel: (617) 592-2122.

■ **QuadriNet Systems, Inc.** last week announced a new pricing structure for its IP address management software.

Under the Enterprise-Class pricing package, users can purchase QuadriNet's QIP address management system for a per-address fee, which begins at \$5 per IP address for intranets with as many as 2,000 addresses.

## Software-based modems get ready for prime time

At Comdex, Motorola, PCtel to demonstrate wares that will let network managers easily upgrade modems from afar.

By Tim Greene  
Las Vegas

Software-based modems that rely on the new breed of powerful PC central processors are set to make a big splash next week at Comdex.

Products from vendors such as Motorola, Intel and PCtel, Inc. are designed to give network managers an easy way to upgrade modems from afar as they tap into remote clients to perform diagnostics.

Host signal processing modems, or softmodems, can be upgraded with software downloads and support remote control of Pentium processor-powered PCs and laptops.

"Having to support remote users can be a bit of a chore, and this helps alleviate that," said Vern Mackall, a senior analyst with market research firm International Data Corp. in New York. Both Motorola and PCtel are selling their technology to manufacturers of PCs, claiming that they are cheaper than conventional hardware-based modem technology.

The vendors' support for Voice View, the proprietary Radish Technologies, Inc. protocol for switching between voice and data on the same call, will allow net managers to efficiently handle calls for assistance.

The manager can talk to the remote user about trouble, then take over the client by remote control to reconfigure the machine or make software upgrades as needed.

Softmodems consist of software that requires about 2M bytes of disk space and an ISA-based telephone interface card. Data pump and controller functions are handled by the computer's CPU and software rather than the dedicated chips in a hardware modem.

That requires a powerful processor, with Motorola recommending a minimum of a 150-MHz Pentium chip for its SM34DFV modem. The modems are an interesting option for those enterprises in which

remote offices are being expanded or upgraded.

Even with a 150-MHz processor in a PC, the modems eat up more than 40% of the chip's processing power, slowing other applications.



Motorola is recommending a Pentium 133-MHz chip minimum for laptops, figuring laptop users multitask less than workers bound to the desktop.

Intel is planning to release multimedia Pentium chips next year designated by the letters MMX that will have silicon changes to handle more efficiently the digital signal processing necessary for modems.

Softmodems will eat up about

30% less processing power with MMX chips than they do with today's chips, according to Motorola.

PCtel will demonstrate the MMX version of its softmodem at Comdex. Motorola plans to support MMX chips in the first quarter of 1997.

Both companies' modems run on Windows 95, and the softmodem also runs on Windows NT. Motorola support for Windows NT is scheduled for the first half of 1997.

The Motorola SM34-DFV will ship in January, initially supporting speeds up to 28.8K bit/sec. The company is promising a free upgrade to 33.6K

bit/sec and support for Voice View during the first quarter.

In the second quarter, the SM34DFV will support 56K bit/sec downstream from a digi-

Dial up more modem info:

- A white paper on softmodems
- A description of how one softmodem vendor will support Intel's MMX multimedia specification

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## Network management

### Remedy kicks its ARS into high gear

New version of help desk application has workflow, GUI and data access gains.

By Jim Duffy

Mountain View, Calif.

Remedy Corp. last week unveiled a new version of its help desk software that features graphical user interface (GUI), administration and data access enhancements.

Version 3.0 of Remedy's Action Request System (ARS) is designed to help users consolidate their internal help desk operations by tightly integrating other management operations and providing customized access to enterprise data.

To that end, ARS 3.0 includes a new user interface that is said to offer a customizable environment for users of varying skill levels; workflow functions that enable administrators to deliver only those capabilities and user need; and data access features that join schemas and support SQL calls to corporate databases.

The GUI allows users to create unique form layouts with their own set of fields, toolbar icons, menu buttons and associ-

ated workflow.

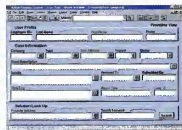
This lets different groups of users within an organization create an interface that is optimized for their tasks, Remedy said.

For administrators, ARS 3.0 includes workflow customization features that enable them to dynamically adjust fields, buttons, toolbar icons and menus to end users' skill levels and needs.

This results in minimal training for those who use ARS infrequently, and more efficiency for "power users" who tackle complex tasks, Remedy said.

#### Custom tools

New data access tools in ARS 3.0 allow administrators to create complex database relationships with point-and-click instructions, Remedy said. Administrators can create a single ARS application by joining multiple ARS schema distribu-



Remedy's new help desk software boasts better customization.

tuted throughout an organization, and then populate this application with data from any SQL database via direct SQL API calls.

ARS 3.0 costs \$6,500 for a single server with three fixed wire licenses.

Users can download clients for Version 3.0 from the company's Web site at <http://www.remedy.com>.

ARS 3.0 will ship in December and is backward-compatible with earlier versions of ARS, Remedy said.

©Remedy: (415) 254-4919.

## INTERNETWORKING MONITOR

## Resurrecting service-level agreements

When large corporate shops began to move away from the big iron, they left a lot behind. Unfortunately, not all of it was bad.

One good thing: The service-level agreement (SLA) was not brought into the client/server realm. Not that it wasn't needed—it was. It just wasn't possible.

Those readers who cut their teeth on NetWare might not even know what an SLA is. Essentially, SLA is a pact between the IT department and the rest of the company. In exchange for the funding it receives, the IT department agrees to guarantee a minimum level of computing service to the user departments.

Mainframe tools enable the service

level to be monitored on a daily basis. As a result, the need for additional system resources could be addressed proactively rather than reactively.

The distributed nature of client/server networking, though based on simpler basic elements, is actually much more complex from a service-level point of view.

All network managers know that many of the problems their networks get blamed for are not their fault. However, without quantitative information on system performance, it was often impossible to prove otherwise.

While LAN test tools have been around since the first LANs, they are still a bit limited. Generating simple or complex patterns of frames is useful in determining the processing limits of a particular switch or router in isolation, but tells you little about end-user performance.

To determine this, the measurement needs to take place end to end. And, crucially, the endpoint isn't simply at the bottom of the workstation where the adapter connects to the LAN, but rather at the top where application code resides.

Furthermore, the behavior of real application traffic is radically different from the stream of packets produced by network frame thrower. A single lost packet will cause an application to step dead in its tracks and resynchronize the transmission.

A decade or more into the client/server revolution, the SLA has once again become a possibility for network managers. In the past year, at least two companies have come out with instrumented client/server application suites that can be used to benchmark a wide range of system environments. By providing canned applications, with workloads that can be reproduced at a moment's notice, network managers can assure an accurate, quantitative view of their client/server environments.

For measuring true application performance across any kind of network, you can turn to Chariot created by Ganymede Software, Inc. Separately, DynamicScan from Bluecurve, Inc. in Oakland, Calif., focuses on capacity planning and throughput measurement for client/server systems based on Windows NT and SQL Server.

As you finalize 1997 budgets, you might want to consider how much unnecessary spending you could avoid if you only understood exactly what was going on in your present network and check out the tools that can help you do that.

Tolly is president of *The Tolly Group*, a strategic consulting and independent testing firm in Manasquan, N.J. He can be reached at (908) 528-3300 or via the Internet at [kialy@tolly.com](mailto:kialy@tolly.com).

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# Carrier Services

Covering: Local and Long-Distance Services • Value-Added Networks • Cable, Satellite and Wireless Networks • Regulatory Affairs • Carrier-Based Internet Services

## Briefs

■ **Booming demand for Internet/intranet bandwidth to Europe has two carriers on either side of the Atlantic teaming up to sink half a billion dollars in undersea fiber cable of their own.**

**MFS Communications Company, Inc. and Cable & Wireless, Inc.** recently announced plans for a joint venture to install a **10G bit/sec Synchronous Optical Network (SONET)** cable between London and New York.

With that enormous capacity, **MPS** will have access to and control of a bandwidth reservoir that can help fill the ever-increasing needs of its Internet division, **UNINET Technology, Inc.**

The cable is scheduled to be up and running within 15 months.

■ **MCJ Communications Corp., Lucent Technologies, Inc. and NextWave Telecom, Inc.** last week announced testing

### NEXTWAVE WAS THE WINNING BIDDER FOR PCS LICENSES FOR:

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- Houston
- San Diego
- Los Angeles
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- New York
- Washington, D.C.

The licenses are awarded according from the FCC.

of infrastructure for **NextWave's** planned **personal communications system (PCS)** network.

**NextWave** was the winning bidder for **PCS** licenses for cities listed in the graphic above.

■ **Dallas-based Stonehouse & Co.** announced it will provide the telecommunications asset management and billing database for **MCJ Communications Corp.'s** new bandwidth management contract with the Department of Defense. **MCJ** selected **Stonehouse's MONIES (Management of Network Income, Expense and Services)** software system for its contract to manage key components of the emerging Defense Information Systems Network.

## Premiere orchestrates 'Net-based services

*Orchestra will also provide universal mailbox service.*

By Tim Greene  
Atlanta

PC users who want universal mailboxes and the ability to set up conference calls without investing in additional hardware will soon have a new option: an Internet-based service called **Orchestra** from **Premiere Technologies, Inc.**

The long-distance carrier — which already offers similar services over telephone lines — will now let PC users send and receive E-mail, voice mail and faxes, with the option of gathering them as text or audio.

To use **Orchestra**, an end user needs only an Internet connection and a PC equipped with a Web browser, speakers and a microphone.

**Orchestra** users can set up and tear down conference calls, dropping individual parties and adding others at will. The service gives the user access to and control of some telephone switch functions via the Internet.

Premiere only charges for use of its switches — 25 cents per minute — so any **Orchestra**-related "Net" transactions cost users nothing beyond their current Internet connection costs.

"You don't need any applications loaded to use [Orchestra]. Any phone, any browser — there's nothing proprietary about it," said **Traver Kennedy**, director of WAN research worldwide at the **Aberdeen Group**, Inc. in Boston.

Combined with secure intranets, the service could blossom. "You could provision communications for users worldwide without having to install any hardware at all," Kennedy added.

**CompServe, Inc.** is considering using **Orchestra** to support a universal mailbox service. **CompServe's** network would gather the E-mail and forward it to **Premiere's** server. But **CompServe** is not yet prepared to announce availability of such an offering, said **Steve Owens**, manager of communications ser-

vices for the company.

### How Orchestra works

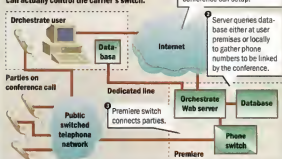
The end user hits the **Premiere Web** server, which authenticates the end user and displays an options screen, including inbox, configure and contact.

Using mouse clicks, the end user can retrieve messages, delete or forward them. A single command can forward a message to a prespecified group via E-mail or fax.

Also using the mouse, a user can set up a conference call by accessing lists of phone numbers stored in a **Premiere**-hosted database or in the user's database that is connected to the **Premiere** server via a private line

### WEB CONTROL OF CONFERENCE CALLS

With **Premiere's Orchestra** service, the user can actually control the carrier's switch.



(see graphic).

Once the user specifies conference call parties, the server signals the **Premiere** telephone switch to set up the conference, starting with the initiating caller. The initiating caller keeps control of the call, with the ability to add or drop parties using mouse clicks on the screen display.

1 User hits **Orchestra Web** server via the Internet, and demands conference call setup.

2 Server queries database either at user premises or locally to gather phone numbers to be linked by the conference.

3 **Premiere switch** connects parties.

4 **Premiere Web server** connects parties.

5 **Phone switch** connects parties.

**Orchestra** parallels **WorldLink**, **Premiere's** telephone service, which offers similar functions over a phone line using voice or keypad commands.

**Premiere** plans to begin testing **Orchestra** this month and will roll out the product in December.

©Premiere: (404) 262-8400.

## FCC keeps an eye on transition from tariffs

By David Rohde  
Washington, D.C.

One week before the Federal Communications Commission ordered long-distance carriers to cancel their tariffs, AT&T pleaded with the commission to make an exception for individual negotiated tariff deals that still have a while to run.

The FCC rejected AT&T's request. But several days after voting to end the 62-year-old system of filed rates (NIV, Nov. 4, page 8), the commission issued additional rules to help carriers and users make the transition to commercial contracts.

The commission's basic piece of guidance: Neither carriers nor users should use the transition to ordinary contracts to try improving their side of the deal.

The issue arose after AT&T's chief regulatory lobbyist, **Gerry Salemm**, wrote FCC Common Carrier Bureau Chief **Regina Kearney** on Oct. 22 suggesting that the FCC allow all special deals — such as AT&T contract tariff and Tariff 12 arrangements

— to run their course.

The FCC nixed the idea, emphasizing that keeping any type of tariff in force after nine months would perpetuate the problem the commission was trying to solve: the ability of carriers to alter the effective terms of a customer's deal by filing a new piece of paper with the government.

Instead, carriers must submit new, ordinary contracts, even to customers whose deals do not expire in the next nine months, said FCC attorney **Christopher Heilmann**. The new contract must fix the prices and other terms of the deal that exist at the time, and neither the carrier nor the customer should expect to improve its position.

### Bundle of issues

The FCC failed to act on a companion proposal to allow network services and network customer premises equipment

(CPE) to be sold on a single contract. The commission left in place its rule prohibiting the bundling of CPE with basic services — those in which the carrier simply provides transport as opposed to enhanced services such as transaction processing.

The FCC's inaction drew a rebuke from Commissioner **Rachelle Chong**, the only Republican on the four-person commission. In a statement, she said the FCC should have lifted the bundling prohibition for domestic, basic services immediately.

Alluding to the breaking apart of AT&T and **Lucent Technologies, Inc.**, **Chong** noted that "no interexchange carrier currently provides long-distance service and CPE on a vertically integrated basis," ending part of the original rationale for the unbundling rule.

The FCC is opening a new comment period on the bundling issue and is expected to take it up again in the first half of next year. ■

**FOLLOW UP**



**Chong:** FCC should allow users to sign a single contract for carrier services and CPE.

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## Briefs

■ **Xircor, Inc.**, based in Thousand Oaks, Calif., last week enhanced its line of adapters with its first **CardBus 1.0/100** card for connecting laptops to 10M and 100M bit/sec networks. CardBus technology brings the benefits of PCI — 32-bit, 33-MHz operation — to portable PCs or notebooks, which typically suffer from slow overall performance. The adapter, which is available now, costs \$199.

Xircor: (800) 438-4586.

■ **Hayes Microcomputer Products, Inc.** used *Networks Expo in Dallas last month* to tout its new line of **remote access servers**. The 2000 series is available with four, eight or 16



serial ports and is positioned as an entry-level product for small offices. The 9000 series, optimized for use in large corporate networks or for Internet service providers, supports as many as 12 module slots. Servers in both families include Century Management software for remote configuration and management. Pricing was not available.

Hayes: (770) 840-8200.

■ **Clarison, a division of Data General Corp.**, this week will announce the **Series 3000**, a high-availability **disc array storage system** for enterprise networks. The Series 3000 provides up to 2.4 terabytes of disk storage, and includes redundant storage processors, power supplies and fans. It also includes support for Fibre Channel, which will allow storage subsystems to be clustered when connected to a server. The Series 3000, with a starting price of \$21,600, will ship later this month.

Data General: (508) 888-6596.

## Dell offers network-friendly PCs

Systems integrate integrated management hardware, self-monitoring technology.

By John Robinson  
Austin, Texas

Monkey see, monkey do. Dell Computer Corp. last week joined the pack of vendors scrambling to quell interest in low-cost network computers by offering network-friendly PCs.

The company announced the OptiPlex Gs and OptiPlex GXi — Pentium-based PCs that feature Ethernet connections and integrated management capabilities. The systems can be configured with 133- or 200-MHz processors, and will replace Dell's OptiPlex G and GX models.

Both systems come with Dell Inspector management hardware and support the Desktop Management Interface. Dell Inspector lets PCs analyze and determine the status of internal components, and report problems to a network administrator.

The systems also feature the company's Self-Monitoring Analysis Reporting Technology, which reports potential hardware problems.

With integrated support for Intel Corp.'s Universal Serial Bus, peripherals can be automatically configured as soon as they are attached, without rebooting the system or running a setup program.

The OptiPlex Gs can be configured with an optional 10M bit/sec Ethernet connection, while the OptiPlex GXi comes standard with a 10M/100M bit/sec Ethernet PCI slot. Both systems can be bundled with Windows 95 or Windows NT.

The announcement of Dell's new workstations came on the heels of several measures by other vendors to integrate management capabilities into workstations, reduce costs and

provide out-of-box network compatibility (NW, Nov. 4, page 34). The moves are designed to defend the viability of networked PCs in the face of a big push on the part of several prominent companies to establish network computer strategies that offer lower prices and ease-of-management capabilities.

Dell last week lowered costs on other members of the OptiPlex line by as much as 11%. The OptiPlex GXL 200, with a 200-MHz Pentium processor and prepackaged with Windows 95,



dropped in price from \$2,885 to \$2,550.

Prices start at \$1,604 for a OptiPlex Gs with a 133-MHz Pentium processor, 16M bytes of memory and a 1G-byte hard drive. A similarly configured OptiPlex GXi starts at \$1,804. ©Dell: (800) 289-3355.

## 3Com releases low-end routers

By Jodi Cohen

Santa Clara, Calif.

Branch office users have long been the network community's second-class citizens, but 3Com Corp. hopes to put them on top with its new line of low-end routers.

The company's OfficeConnect NetBuilder routers, which allow customers to extend

Take the right route: Download our Buyer's Guide to low-end routers.

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the corporate intranet to remote branch offices, provide enterprise-level routing features starting at about \$1,500.

Key features include support for multiple WAN services — frame relay, ISDN, X.25 and Switched Multimegabit Data Service — as well as support for IP, IPX, AppleTalk and SNA routing protocols.

In addition, OfficeConnect routers offer IP firewall capabilities for increased security, and bandwidth management software.

"This is the one area right now that 3Com can claim that they are stronger in than Cisco [Systems, Inc.]," according to Esmereilda Silva, an analyst at International Data Corp., a market research firm in Framingham, Mass. "There really isn't anyone out there that can touch 3Com's OfficeConnect line in terms of having a solution targeted at the very small network."

The routers, which round out the OfficeConnect family of hubs, bridges, and print and fax servers for remote offices, will be available by year-end.

Adapted at adapters

Separately, 3Com last week announced an enhanced version of its Ethernet/modem card for laptops.

The EtherLink III LAN Modem PC Card sports 33.6K bit/sec modem speeds, support for cellular transmission and 10M bit/sec Ethernet access.

EtherLink III also supports the Win95 Plug and Play spec, and comes with software for auto-installation in Windows 3.X machines.

Pricing starts at \$379 per card for a twisted-pair version and \$429 for a coaxial cable model. ©3Com: (408) 764-5000.

## NCR strikes a server blow for smaller network sites

By John Robinson  
Dayton, Ohio

With the clutter of recent server announcements muddling choices on the high end, NCR Corp. this week will recognize smaller customers with entry-level, Pentium-based servers.

The NCR S26, available with single or dual 133- or 166-MHz processors, is designed for retail stores, bank branch automation, and LAN file and print applications, the company said. As users' processing needs grow, the servers can be upgraded with Pentium Pro processors.

The servers run Windows NT Server, NCR Unix, OS/2, SCO UnixWare and Open Server, or NetWare.

For customers operating in a Windows NT environment, the servers can be controlled using

NCR's Server Manager. The software monitors hardware resources such as memory and disk utilization and alerts system administrators if performance parameters are exceeded.

The S26 servers come equipped with seven 32-bit expansion slots — four PCI, two EISA and one shared PCI/EISA — and can be configured with as many as 11 drive bays to support tape, CD-ROM, flex or hard drives.

In addition, the servers have up to 32GB of internal disk storage and up to 512K bytes of cache.

The S26 servers are available now in one- or two-processor NT or Unix versions. Prices start at \$11,750 for a single processor version and \$16,150 for a dual-processor system.

©NCR: (513) 297-5700.



NCR's S26 has management hardware for Windows NT.



## The Merchant Server of Redmond

Microsoft Corp. has launched Merchant Server, the company's latest effort to meet customers' Internet and electronic commerce needs. As described by the company, the product is a small business's dream.

But that depends on how you define small. Merchant Server will cost you \$14,995 per server plus \$3,495 per store, which is defined as each unique home page and other associated content. In addition, you'll need Windows NT Server, Microsoft's Internet Information Server and an Open Database Connectivity-compatible database system.

That's a base cost of more than \$20,000 to set up your Internet storefront. Even if you could show a gross profit of 20%, your first \$100,000 in sales would be earmarked to pay for your Microsoft bill — provided you didn't also have to buy hardware on which to run it.

What do you actually get for your money? Some templates, some ActiveX controls and some scripts. A person can set up a storefront without any programming knowledge. But to fully take advantage of the possibilities, you'll at least need a person familiar with HTML, ActiveX, or Java and database programming. A graphics artist would also be useful.

As far as I can tell, though, you don't even need Merchant Server; just take that \$20,000 and hire a consulting firm to set up your storefront for you.

If design isn't the benefit, maybe security is. After all, Microsoft promises a "secure buying experience." The specifications document says VeriFone, Inc.'s vPOS Internet-based payment processing software is included in the box to provide a secure solution for credit card transactions. VeriFone technology provides a supposedly secure link between the merchant and the credit card issuing institution.

The actual purchase transaction is handled with Netscape Communications Corp.'s Secure Socket Layer protocol. This will supposedly protect sensitive credit card information from being intercepted during the transaction.

Of more importance to the security-conscious, though, is what happens after the transaction. Credit card numbers are going to be stored on your server. If I were a hacker, would it be more appealing to listen interminably to intercept credit card numbers or hack into a server to acquire a large list of them? Surprise! There's no additional server security included with Merchant Server — just standard NT Server administrative control plus some IP address filtering.



Dave Kearns

### Tip of the week

The Computer Security Institute has published a Manager's Guide to Cyber-space Attacks and Countermeasures that is free for members and \$10 for non-members. Details are available via the Web at [www.gocsi.com](http://www.gocsi.com). The book covers every known form of electronic threat, including denial of service, viruses, system break-ins and interception of traffic. Definitely get this before setting up your Merchant Server.

But as Bill Gates said, "I don't think that security will be something that holds back electronic commerce."

Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at [dkearns@msn.com](mailto:dkearns@msn.com).

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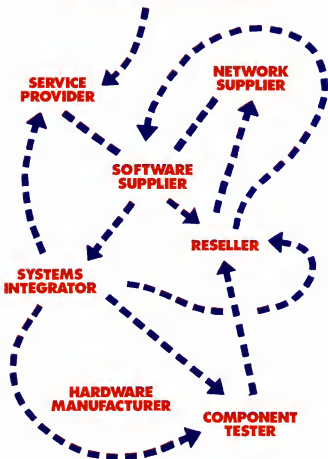
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Keycode #23031

# Pentium Pro servers are packing a powerful punch for network users

Enhancements from Intel promise to keep processors in step with emerging applications.

By John Robinson

With the birth of the Pentium Pro processor last year, Intel Corp. delivered a chip built on timeless motherly wisdom: It's what's on the inside that counts.

The Pentium Pro brought unprecedented performance to mid-range servers, offering a

## A HEFTY SLICE

Compaq's ProLiant 5000 server accounted for nearly 80% of all servers shipped with Pentium Pro processors in the second quarter. Compaq is expected to have grabbed an even larger share the third quarter.



SOURCE: IDC, FRAMINGHAM, MASS.

minimum 1.6 times the processing power of the Pentium chip as well as onboard cache memory.

The Pentium Pro's performance ratings struck a chord with network administrators deploying Windows NT. The powerful processing engine sparked the performance boost necessary to support 32-bit applications, giving Intel and Microsoft Corp. a bigger role in enterprise networks.

"The Pentium Pro is still ramping, and we expect that to continue," said Ken Grilley, director of marketing at Intel. "The server market is growing faster than any other market, in part due to the Pentium Pro."

But while the chip has proven itself on its first lap, network decision-makers are hungry for more scalability, power and enhancements.

With a new chip design, multimedia upgrades, powerful partnerships and an eye on emerging network technologies, Intel is ready for a second run.

## What's next?

In the first quarter of next year, Intel is expected to introduce the long-awaited addition to the P6 family, of which the Pentium Pro is currently the sole member. Code-named Klamath, the new processor is said to have processing speeds approaching the 300-MHz mark, whereas current Pentium Pros peak at 200 MHz. It will also include multimedia extensions (MMX) to increase performance of applications such as videoconferencing.

Some customers have been hedging over whether to purchase servers and desktop machines based on the Pentium Pro or wait for the MMX capabilities. But Intel plans to make the decision easy by offering an overdrive processor that will upgrade Pentium Pros to the features of the Klamath chip, sources said.

"With the MMXs, you can accelerate or improve audio, video, imaging or anything that is very data-intensive," an Intel spokesman said. "Over time, all of our processors are going to include this technology."

Lyned Fitzpatrick, an analyst with International Data Corp. (IDC), said while the MMXs and increased processing speed are attractive, it is Klamath's reported support for 16-bit applications that will help draw new customers.

"There is a huge installed base of 16-bit applications, and users want to see a significant performance increase if moving to a next-generation chip," Fitzpatrick said. "That's what Klamath is promising."

Another plus for customers: The introduction of Klamath is sure to bring down the cost of Pentium Pro and Pentium processors. And Intel just last week reduced the price of Pentium

Pros to near-Pentium levels (see graphics), which should cause server prices to plunge further.

With three offerings in the P6 family, analysts expect the Pentium processor will be overshadowed by the superior performance of the Klamath and Pentium Pro chips. Intel sources said the company will continue to market the Pentium through 1997 but added it will eventually be phased out as the price points are blurred.

## The Three Musketeers

The Pentium Pro's success in the server arena this year is largely based on Intel's many strategic partnerships. But when it comes to the enterprise, two companies stand tall beside Intel: Microsoft and Compaq Computer Corp. With a happy marriage of server box, processor and operating system, analysts said this family has the looks, the brains and the brawn to dominate the mid-range server market.

In the second quarter of this year, nearly 80% of all PC servers shipped worldwide with Pentium Pro processors were Compaq ProLiant 5000 models, according to IDC. Available with 200-MHz processors and 512K bytes of cache memory, the ProLiant 5000 delivers high-level performance for database applications.

And Intel makes no secret of the Pentium Pro's optimized performance for Windows NT 4.0, weighing heavy marketing behind the operating system/processor marriage. "Anything that runs on Windows NT will run faster on a Pentium Pro," Intel's Grilley said.

Peter Lowber, a Lexington, Mass.-based analyst with DataPro Information Services Group, said it should come as no surprise that Intel and Microsoft are

sleeping together.

"Windows NT has been out there for a while, and with the release of NT 4.0 and the Pentium Pro, it was a big performance jump," he said.

"Customer acceptance was really there."

Intergraph Computer Systems, Inc. is one company putting on a Pentium Pro/NT face. The Huntsville, Ala.-based outfit, traditionally known as a graphics software and systems supplier, is putting all its chips on the server market.

"Our goal is to make a major push into the enterprise, and Windows NT on a Pentium Pro is the way we are going," said Lee Hansen, vice president of Intergraph's server division.

## The clustering question

The Klamath chip provides Intel with market range for its P6 family, but Reduced Instruction Set Computing (RISC)-based Unix systems have a concrete hold on the multiprocessor server market in large IT environments.

Intel and its partners, however, are starting to chip away at that installed base.

Some companies are jerry-rigging Intel's bus architecture, coupling two four-processor circuit boards for a total of eight processors. NCR Corp.'s WorldMark 4300 servers will follow this model by using the company's



Intel's powerful processors are turning up in more and more network servers.

Octascale controller to interconnect the circuit boards and compete with higher end RISC servers.

Lowber said while clustering solutions for Pentium Pros and Windows NT are slim, the processor and operating system will begin to take root in traditionally RISC-based environments as administrators realize their power.

Ripples will first appear as early as next year in the financial services industry, he said, with Unix-based trader workstations being migrated to Pen-

## Pentium Pro price slide

If you're pricing Pentium Pro servers, it helps to know what server companies are paying for the processors.

(Figures are for orders of 1,000 processors.)

▶ 200 MHz with 512K-byte cache.....	\$1,035
256K-byte cache.....	\$525
▶ 166 MHz with 512K-byte cache.....	\$627
256K-byte cache.....	\$428

tium Pro-powered systems running Windows NT.

"Trader workstations are all Sun SPARCstations on Wall Street, [but] the next round are going to be Windows NT-based," according to Lowber. "The RISC Unix vendors are exposed — especially Sun and [Silicon Graphics, Inc.] — without an alternative NT strategy. There is going to be a bloody war."

## And network computers?

Another war is raging over the introduction of network computers (NC).

The Pentium Pro apparently has little to fear from the NC model, where servers act as gatekeepers to a fleet of thin clients. Powerful servers — with powerful chips such as the Pentium Pro — will be needed to run the applications accessed by NCs.

"The network computer market is hot, and we are looking at it seriously," Intel's Grilley said. "You wouldn't need Pentium Pro performance on the desktop, but you would on the servers."

Analysts agreed, noting that the Pentium Pro is positioned as an every-chip.

"Intel wants to be the supplier across the board for every market with the Pentium Pro, and it could fit in networks of network computers," Lowber said.

"There is definitely an incentive out there for people to try something different. And with that, we are going to see the impact of the Pentium Pro." ■

# Client/Server Applications

Covering: Databases • Messaging • Groupware  
Conferencing • Imaging • Multimedia • Development

## Briefs

■ **Microsoft Corp.** last week talked up a feature of its upcoming **Exchange** upgrade that will make it easier for Web developers to exploit parts of the company's messaging server. At its Professional Developer's Conference in Long Beach, Calif., the company revealed plans to add support for its Active Server scripting lan-

### ALSO IN EXCHANGE 4.5

- ▶ Support for Internet protocols such as POP, NNTP, HTTP
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- ▶ Web services for accessing mail and schedules from browsers
- ▶ ccMail connector

guage to Exchange 4.5, due by year-end. This means developers can use the scripting language to build Web applications that rely on the messaging engine to route forms to certain users.

■ **BHR Software, Inc.**, in San Jose, Calif., has released **BHR Info.Net**, which blends a new Java-based Web front end with a suite of 350 business applications for small to midsize companies in manufacturing or distribution. Users equipped with Web browsers log on to a Web server; download the Java client code and then run — over TCP/IP — interactive sessions with the applications. An intranet version of the software costs \$2,875 per user, while a service-based edition averages about \$1,000 per month. **BHR: (408) 888-0600.**

■ **Iona Technologies, Inc.**, in Dublin, Ireland, has released the latest version of its **Orbit object request broker (ORB)**. The new edition performs about 25% faster in most applications. The software complies with the entire Object Management Group's Common ORB Architecture specification. The new release, available now, is priced from \$2,500 to \$5,000, depending on the number of users. **Iona: (617) 679-0900.**

## Workflow

# WebFlow flexes new groupware muscle

Upgrade makes assigning, accepting workflow tasks easier.

By Barb Cole

San Jose, Calif.

WebFlow Corp. this week will roll out an upgraded edition of its Web-based groupware that is more suitable for building collaborative applications that span the enterprise.

The company's SamePage Suite 2.0 is now more flexible in the way it lets users assign and accept workflow tasks, and is better able to handle documents that include images.

SamePage Suite is a set of server-based applications that work with Simple Mail Transfer Protocol-based mail systems. The software includes the SamePage Workspace, where users

one else.

"We have marketing and engineering specifications that are posted, reviewed and approved [in SamePage], so the [workflow] enhancements will be a real advantage," said Albert Mayo, IT manager at Meter Communication Systems, a Norcross, Ga., maker of automatic reader systems that intends to deploy about 50 SamePage licenses.

WebFlow has also tightened the software's links to E-mail systems, letting users send E-mail

messages from the SamePage Workspace and define when E-mail notifications are to be sent.

Version 2.0 also adds support for Microsoft Corp. Mail and Lotus Development Corp. ccMail.

In addition, document creation and handling capabilities are improved in Version 2.0. New document templates may be used to quickly generate items such as status reports, customer service reports, customer profile forms and change orders.

Version 2.0 also has better support for mixed-media documents.

The system can now load compound documents faster because it stores them in "chap-



**SamePage's TaskAction** task manager lets users view the status of tasks and post comments. Tasks also can be assigned or transferred from one member of a group to another.

ters" that contain multiple elements.

Available now, SamePage 2.0 runs on Windows NT, SunSoft, Inc. Solaris and Silicon Graphics, Inc. IRIX servers. Pricing is \$3,500 for a 10-user system.

©WebFlow: (408) 235-1400.

## Application development

# Software lets users plug maps into Windows apps

By John Cox  
Troy, N.Y.

MapInfo Corp. has released two products intended to make it much easier to build client/server applications that analyze and represent corporate data in a series of maps.

One product is MapX, an OLE Custom Control (OCC) that can be embedded into Windows applications using an array of popular development tools. The other offering is SpatialWare 2.0, server software that adds spatial information to data in Oracle Corp.'s database and manages client queries to that information.

Spatial or mapping software is growing in popularity because it visualizes numeric data locked in rows and columns in a database. An insurance company, for example, can use these products to see the distribution of policy holders in a flood-plain area and then adjust rates.

Typically, such products are either high-end, proprietary geographic information systems or single-user PC-based tools.

This week, MapInfo will release MapX, which is a 32-bit, 1M-byte OCC that can be loaded

into and used by any standard visual development environment. Developers working with these tools simply drag the MapX icon into their editing window to show a default map with zoom-in and zoom-out capabilities, among other features. End users

existing corporate databases so they can be queried in spatial terms by desktop tools such as MapInfo Professional.

"We take Oracle database tables and we add two columns — we append to the database record a spatial object. It's a fairly automated process," said Steve Talbot, MapInfo's director of SpatialWare marketing. "We also added some additional SQL phrases, to describe spatial relationships, such as 'next to.'"

Application developers would simply make use of these SQL commands in their applications. For database administrators, SpatialWare works with the full range of standard adminis-

tration tools and fully supports Oracle's security features and transaction processing.

SpatialWare is available now on Solaris and SCO Unix computers. Pricing ranges from about \$25,000 for a workgroup solution to about \$200,000 for an enterprise version.

©MapInfo: (800) 327-8637.

### PRODUCT SPOTLIGHT: MAPX

Vendor: MapInfo Corp., in Troy, N.Y.

**What it is:** A 32-bit OLE Custom Control (OCC) that works with a wide range of popular client/server application development tools.

**What it does:** Creates a customizable map, with point-and-click features such as zoom in, for displaying data from server databases.

**Available:** Now

**Price:** \$1,000 per developer license; \$20 per run-time license. A 30-day trial version is available via the Web at [www.mapinfo.com](http://www.mapinfo.com).

receive an application with built-in mapping capabilities.

Last month, the company unveiled SpatialWare 2.0, the first commercial version of server software originally offered by Unisys Corp. only in beta form. The software — acquired by MapInfo from Unisys in October — automatically transforms

Go online for more info on Web-based collaborative and conferencing applications.

Enter the number to the right in the Reader Service box on the home page.



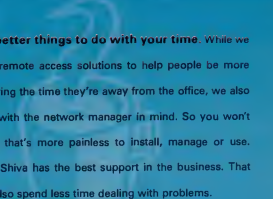
may collaborate on compound documents, and the TakeAction Action Item Manager for assigning and accepting tasks.

SamePage users access the applications using a Web browser and receive notifications about assigned work or changes in the status of a collaborative document via E-mail.

The most significant changes in Version 2.0 are in the ways users can assign and accept work within the applications, said Richard Rehn, vice president of marketing at WebFlow.

For instance, tasks may now be assigned to an individual or group, or broken into subtasks. Recipients can accept or reject tasks, or pass them on to some-





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## SHARED LOGIC

## Looking for a few good mail switches

**L**otus Development Corp.'s messaging backbone division is betting that increases in both the quantity and the quality of message traffic will mean con-

tinued demand for high-end message switching products.

For some time, the company's SoftSwitch group—which last month held its

annual users conference in Philadelphia—has offered a strong messaging backbone product line centered around the SoftSwitch Central and Lotus Messaging Switch offerings. The primary value of the products has been to provide messaging and directory gateways enabling communication between multiple proprietary mail systems.

However, as we move toward the utopia of ubiquitous Internet messaging, there will be less need for gateways. To remain viable in the era of client/server Internet messaging, SoftSwitch and other backbone vendors must shift their focus to what was once a secondary value proposition: standards-based message switching and management.

Decentralized Simple Mail Transfer Protocol deployments, where Unix mail hosts and workstations communicate directly without the help of intermediate message switches, are becoming common. And why not? There's no expensive high-end switching backbone, the deployed software is mostly freeware, and there's no IS department overhead.

But there are hidden costs in this seemingly idyllic SMTP playground. Hundreds of engineers and system administrators devote significant hours to maintaining

Sendmail (or other) configurations. Version control and quality control is lacking, messages are often delayed or lost and cannot be traced. Worse, some mail systems create security vulnerabilities when allowed to connect to the Net directly.

The fully decentralized SMTP deployment isn't good enough for most corporate customers that are already facing the operational crush of exponentially increasing message volumes. "The quantity of E-mail has increased so much," joked Steve Lane, general manager at SoftSwitch, "that some users are considering turning their E-mail systems off at noon so people can get their work done."

Kidding aside, much of that in-box mail glut is important stuff that needs to be delivered promptly and reliably. Increasingly, companies are using E-mail for mission-critical purposes.

Good high-end Internet message switches such as SoftSwitch's planned Dragonfly offering and Isocor's N-Plex will act as firewalls, serving as a single connection point for external messaging audit and control. They will rewrite or remove corrupt headers that could crash brittle internal systems. They will also provide message logging, tracking, monitoring and service-level maintenance.

If all that doesn't convince you of the importance of good, solid message switching, consider this: In another of Lane's interesting stories, a large oil company experienced a 48-hour delay in receiving a price quote via E-mail that, had it been delivered on time, could have saved the company \$250,000. That's significantly more than the price of a really good high-end messaging switch, including taxes, installation and configuration.

Blum is a principal at RapPort Communication, a consultancy that focuses on messaging, groupware and electronic commerce. He can be reached at dblum@interamp.com.

# He Must Be Talking About

## Clinton Eyes "Legacy" Issues

President Clinton plans to take on two incendiary political issues — security and the environment — in his first year in office. — USA TODAY

# Browser-Based Mainframe Access

Hail to the Chief! If the President of the United States is looking into it — it must be important. Browser-based access to "legacy" systems makes existing applications and data more widely available to internal customers over intranets, and extends this infrastructure to customers, distribution channels, and business partners over the Internet.

The advantages of integrating host information using OpenConnect's new SNA Web co-processing technology, OC/WebConnect™, and its companion integrated development environment, OpenVista™, have become very compelling. OpenConnect Systems' browser-based host access increases the value and the availability of SNA mainframe and midrange applications and data without sacrificing SNA network

performance, management or security.

Using OpenVista, you can rejuvenate host applications with graphical user interfaces and offer them to a whole new class of users with less training, and little or no distribution costs. You'll reduce network bandwidth utilization, without modifying the existing host application.

To learn how you can make the move to browser-based access for your mainframe, call for your free white paper which outlines the business benefits of browser-based host access and rejuvenating your mainframe applications. Doing so will make you appear very presidential.



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# Intranets & the 'Net

Covering: Internet Technologies and Services  
for Collaboration and Electronic Commerce

## Briefs

■ **VeriFone, Inc.**, has announced a **smart-card terminal** that lets consumers use electronic cash in places where they usually use paper currency.



such as taxis and food vendors. The Omni 1250 supports a number of stored-value card schemes such as MasterCard Cash.

■ **Next Software, Inc.**, this month will ship **WebObjects Developer 2.0**, a **development tool kit** featuring the **WebObjects Builder** for creating Web sites that combine **ActiveX**, **Visual Basic Script**, **Java**, **JavaScript** and **HTML**.

Next Software (800) 879-6398.

■ **Boschormann, Mass.**, based start-up **Acadia Software, Inc.**, has announced a **\$129.95 JavaScript editor** that gives users a way to create **visualized JavaScript** object trees.

Acadia (508) 244-8881.

■ **Brightware, Inc.**, has started shipping **Art Enterprise 2.0**, a development tool that lets companies build custom applications for automating response and follow-up on sales-related inquiries originating at Web sites and in Internet E-mail.

Brightware (415) 884-4740.

■ **Cisco Systems, Inc.**, has added support for industry-standard authentication protocols **TACACS+** and **RADIUS** to the latest version of its **firewall**, the **Cisco PIX Firewall Version 3.0**, which uses what Cisco calls the **Cut-Through Proxy** to quickly authenticate user identity at the application layer.

Cisco (408) 526-1732.

## Java to the core

Sun's vice president of marketing responds to heated questions.



If column inches and headlines are any indication, the Network Computer (NC) and Java are both hot. No article would be complete without some mention of Sun Microsystems, Inc., which created the Java programming language and recently rolled out the JavaStation NC.

As Sun Microsystems, Inc. vice president of marketing, Anil Gadre is responsible for maintaining a high profile for new Sun products. Gadre fielded questions about just where all this is heading in a recent conversation with *Network World* Senior Correspondent Ellen Messner.

Are you staking the future of Sun on the JavaStation NC?

I can tell you today that business is booming on the server side, and it has little to do with

Java. Our workstation business, roughly 50% of our revenue, still continues to grow, and I seriously doubt anyone designing jet engines will dump their workstations for an NC.

But people at Boeing and Ford are looking at the NC for their people who only need to view output. The NC is aimed at the mass-market commercial desktop. We tried that before with Unix, but it wasn't the right answer.

Is the NC the replacement for dumb terminals or X terminals? Fundamentally, I'd say yes.

Why did you decide to put an Ethernet connection, but not

modem access, on the first NC?

Over the course of the last 18 months, the single most urgent problem I've heard of is the cost-of-ownership problem in the intranet. The fact that Microsoft is reacting so strongly [with the NetPC announcement] means they heard the same thing, too.



Gadre says, "Java is forcing companies to evaluate all their client software usage."

Are there specific vertical industries or applications where you see the most initial demand for the NC?

Banking, by far, was the first crowd to warm up to the idea, perhaps because they have constantly changing products and services. First Union's capital markets group wants to put the NC in front of tellers first, and eventually in front of every employee.

Java, as downloadable executable code, has raised security concerns, some of them a little paranoid. How can you respond

## Security

### Sun offers 'cool' way to add Java to legacy apps

By Ellen Messner  
Mountain View, Calif.

Managers of some legacy applications can jump on the Java bandwagon with the help of ICE-T, a tool kit recently announced by Sun Microsystems, Inc.'s SunSoft division.

The tool kit can Java-enable applications written in C or C++. Programs written in COBOL and other older data processing languages, however, are out of luck.

According to Larry Weber, general manager of SunSoft, Inc.'s workshop products, by adding the ICE-T interface to existing legacy code, systems managers can make them available via a Java-based Web browser or Java client over the Internet or any TCP/IP network.

**The ICE-T tool kit offers a way to provide authentication services and manage the communication between the server and the client.**

The ICE-T tool kit, now in early release, offers a way to provide authentication services and manage the communication between the server and the client, Weber said. "ICE-T allows you to assign a user profile to the application to get different permissions to access existing databases," he said. ICE-T lets developers add a Java applet to their Web sites that will challenge the visitor to enter a name and password, or other variables, to access back-end databases or other applications.

"Once ICE-T verifies who you are, you have tables that tell you what you can access," Weber said. "Then ICE-T will download the applet necessary to access the information."

To keep the data confidential

while traversing the network, SunSoft will be adding encryption services to ICE-T. But Sun



"With ICE-T, users can leverage their legacy applications into Java."

Soft is still in discussion with the National Security Agency (NSA) on the contentious encryption issue. The NSA does not want SunSoft to provide unbreakable encryption in ICE-T due to national security concerns that terrorists or criminals could take advantage of it.

For more information on ICE-T, check out [www.sun.com/developer/products](http://www.sun.com/developer/products), or call (800) 786-7638. ■

to these concerns?

We're keeping up with anything anybody can find [related to security]. I appreciate the paranoia, and I want them to stay paranoid so we can figure everything out.

What do you think of Microsoft's recent announcement about the NetPC?

Clearly, their response tells you they're hearing the same thing from the information technology community about the hardship of distributing client software that we're hearing.

Download technical overview of Sun's JavaStation and Microsoft's competing SIPC proposal.

Enter the number above in the DocFinder box on the home page.

Network World Fusion  
<http://www.nwfusion.com>

Remember, Microsoft's business model requires you to upgrade every year; it's like a tax you have to pay.

Java seems to change the traditional software pricing model of charging users per client. Is this so?

I don't think anyone's figured it out completely yet. I think you'll see people go with site-architecture licensing, and others will be paying on a pay-per-view basis. Companies are just now starting to come up with that kind of tracking and metering software.

Does Java force companies to evaluate their client software usage?

Absolutely. But it's hard to find that out. Network management software has been using this idea for years.

Is there a need for interoperability testing between different vendors' NCs?

You'll see everyone close to the NC reference. The bottom line is you have to run Java applets clearly.

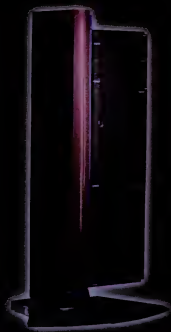
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## NET INSIDER

## A lesson almost learned

With great fanfare, including mention on prime-time news shows and prominent coverage in the daily newspapers, America Online, Inc. is trying to

reinvent itself. The company seems to be basically on a good path, but there is a small sign that AOL may still not get it. AOL is perhaps best known to nonsub-

scribers for its policy of aggressively distributing start-up diskettes to all of creation. This policy reminds me of the article "National Geographic: The Doodsy Machine" in the *Journal of Irreproducible Results*, which claimed that North America was about to sink into the sea under the accumulated load of *National Geographic* copies stored in count-

less attics and basements.

For those of you who have not been following this part of the Internet business, AOL is no 98-pound weakling. The company had total revenue of over one billion dollars in the year ending June 30, 1996, and it has over six million customers, 140,000 modems in 470 cities worldwide and 5,300 employees. The company's Web site — [www.aol.com](http://www.aol.com) — claims that nearly 30% of Internet traffic comes from AOL. Since there is no known way to measure the current level of traffic on the many thousands of nets that make up the global Internet, this is at best a marketing pitch.

AOL started as a connection-to-content provider. This was the same type of service offering a number of other businesses started with — Prodigy Services Co. and CompuServe, Inc. being examples. The thought that anyone might want to get to resources that were not local to such a provider was a scary concept quickly dismissed, since the Internet was that evil unmanageable force from the dark side. (To such a company, the availability of free information was clearly evil.)

It took awhile, but these companies started to realize that the content they could provide was minute compared to that becoming available on the developing Web, so they reluctantly started opening portals to the 'Net. But they still believed that the 'Net was extra and that the basic value was in their own material.

The just announced AOL reorganization almost turns this attitude around. AOL now offers flat-rate access to its content for people who already have Internet access.

A couple of months ago, I tried out AOL. I was looking for good, basic dial-up Internet access as well as some of the content. It took me a few hours to get the thing running; most of the time, I was waiting for required components to be downloaded. (Why not put more on the diskette?) After all of that, I found it did not support telnet-based access to the Internet, so I gave up.

The new offerings seem to be heading in the right direction, but there was one detail in the announcement that has me worried that AOL is not quite on the ball yet. The company said the new content access service was for those with their own 'Net access, "particularly at school or work." AOL is still living in the past, because Internet access is not just from school and work anymore.

Disclaimer: Harvard does provide extensive Internet connectivity to its students, but has no opinion of AOL's "cluelessness."

*Bradner is a consultant with Harvard University's Office of Information Technology. He can be reached at [sob@harvard.edu](mailto:sob@harvard.edu).*



Scott Bradner

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October 8	New York
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October 16	Boston
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October 22	Kansas City
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October 30	Denver
October 31	San Antonio
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November 7	Houston
November 12	Atlanta
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November 19	San Francisco
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November 21	Vancouver
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December 11	Newport Beach

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August 28	Germany
September 10	Germany
September 11	Germany
September 12	Germany
September 16	Germany
September 17	Germany
September 18	Germany
September 23	London
September 24	Amsterdam
September 26	London
October 2	South Africa
October 3	South Africa
October 4	South Africa
October 16	Paris
October 17	Milan
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# Technology Update

Keeping Up with Network Technologies and Standards

## WINTER'S NETWORK HELP DESK

Ron Nutter, a Master Certified Novell Engineer and Groupware CNE in the Lexington, Ky., area, tracks down the answers to your questions. Call (800) 622-1108, Ext. 476, or send your questions to [ronnutter@world.std.com](mailto:ronnutter@world.std.com).

We have a 16M bit/sec token-ring LAN and approximately 125 computers, of which about 50 have been upgraded to Windows 95. We use Service Pack 1 for Windows 95 and have applied from Microsoft Corp. has delivered since our installation. Some Windows 95 users are constantly getting "Illegal operation" messages involving invalid page faults, as well as OE and OE exception errors. Any ideas on what the problems might be?

### Via the Internet

The first thing you need to do is check to see if all of the computers, network cards and other devices involved appear on Microsoft's Hardware Compatibility list, which is available via Microsoft's faxback system and on the Windows 95 CD-ROM. Be sure to get the latest updates to the network client you are using for the workstations.

The main culprit for the error messages you mention is insufficient memory. At a minimum, you need 16M bytes of memory, or preferably 24M bytes. If your computers already have this much memory installed, try turning off their external cache buffers. Although this may slow processing, it should indicate whether the external processor cache is the source of the problem.

Examine the error log to see if you can detect any patterns. If the errors always report a particular location or range of locations, the memory might be bad. If you don't have a good hardware-based memory tester, move the memory to different SIMM slots. This should help you identify a possible bad memory strip.

If the errors occur at a particular time of day, you might have an electrical problem—such as a bad or missing ground wire, or electrical interference from a particular piece of office equipment or machinery.

If you don't have CyberHub, Inc.'s First Aid 95, you should get it. I've had good luck fixing problems related to a corrupted registry in Windows 95 with First Aid.

## 3-D multiuser applications enliven some online business environments

*The Virtual Reality Modeling Language can be used to create interactive, three-dimensional worlds.*

### By Konstantin Guericke

Companies are starting to realize they can leverage the power of 3-D Internet technology to develop interactive online environments.

The multiuser interactive features of these 3-D solutions are designed to help companies effectively communicate with employees and customers, establish loyalty and increase sales.

When visiting VRML worlds, users can freely choose the perspective from which they view the world, and navigate unencumbered through 3-D environments.

VRML spaces are inexpensive to build and have nearly limitless room for growth. What's more, the objects in them can, and often do, defy the laws of gravity. A user can walk or fly through

of sophisticated technologies offered by companies such as Black Sun Interactive, Inc., OnLive Technologies and Worlds, Inc.

To build a VRML-based 3-D world, you'll need 3-D creation tools, authoring packages and multiuser VRML servers. Because the VRML market is still young, the tools tend to vary by features such as navigation func-

You'll also need a multiuser server, such as Black Sun Interactive's CyberHub Server or OnLive's Community Server, specifically designed to work with existing VRML worlds and the three major VRML browsers—Netscape Communications Corp.'s Live3D, Cosmo and Microsoft Corp.'s Internet Explorer plug-in, CyberHub, for example, lets people interact in public chats, private discussions or through the exchange of business cards.

Some servers do not work with VRML files, or they rely on proprietary worlds. Many multiuser worlds display poorly in the default VRML browsers included in Navigator or Explorer. As a result, it's important to use a server that can connect to clients that use standard VRML browsers to display the worlds.

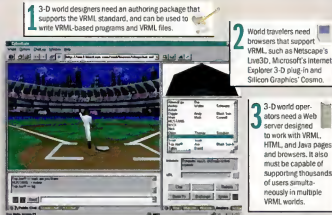
The multiuser server should support open standards, such as VRML, Java and HTML, and scale to accommodate thousands of simultaneous users in multiple VRML worlds.

By employing these fundamentals, network professionals can successfully apply 3-D multiuser Internet technology to reach practical business objectives such as increased revenue, Web site traffic and corporate visibility.

Guericke is vice president of sales and marketing at Black Sun Interactive, a San Francisco-based developer of multiuser servers and interactive 3-D authoring tools. For more information, E-mail [info@blacksun.com](mailto:info@blacksun.com).

## UP CLOSE A 3-D world

The Atlanta Braves created a virtual stadium on the World Wide Web where fans can meet, chat with each other and buy memorabilia. The tools needed to implement interactive, 3-D worlds such as this on a public or private Web site are described here.



What's more, virtual reality—or interaction in cyberspace—has gone from the lab to Main Street. Designers, engineers, educators and business managers are applying virtual reality to enhance productivity and creativity.

### Enter VRML

True interactivity, however, requires companies to discard the static, flat HTML pages of traditional Web applications and accept multiuser 3-D applications. The Virtual Reality Modeling Language (VRML) makes this possible.

VRML allows for much richer interaction than HTML. When viewing HTML-based two-dimensional home pages, the user basically jumps from page to page to look at images from a fixed, predetermined perspective.

When visiting VRML worlds, users can freely choose the perspective from which they view the world, and navigate unencumbered through 3-D environments, rather than typing away at the command prompt in a text-based chatroom.

### Multiuser 3-D realities

For instance, Atlanta Braves fans can go to an online stadium where they can meet and chat with other avatars, or online personalities, and purchase memorabilia. Through this multiuser 3-D world, the Braves organization has broadened its sales and marketing scope to Internet browsers.

But creating the experience of true interaction in a community does not come easily. High performance, multiuser interaction requires the integration

of sophisticated technologies offered by companies such as Black Sun Interactive, Inc., OnLive Technologies and Worlds, Inc.

While VRML is new, 3-D creation tools have been around for a long time. The preferred tools for game designers and multimedia producers have been modeling and animation packages such as Caligari Corp.'s trueSpace, Kinetix's 3D Studio, Softimage's Softimage 3D and Strata, Inc.'s StudioPro.

It's a good idea to make sure the tool not only writes, but can also import VRML files. Be sure to check to what extent VRML is supported. Caligari's Pioneer, Silicon Graphics, Inc.'s Cosmo Worlds, Virtus Corp.'s 3-D Website Builder and Vream, Inc.'s VRCreator are some popular authoring tools.

- 1 3-D world designers need an authoring package that supports the VRML standard, and can be used to write VRML-based programs and VRML files.
- 2 World travelers need browsers that support VRML, such as Netscape's Live3D, Microsoft's Internet Explorer 3-D plug-in and Silicon Graphics' Cosmo.
- 3 3-D world operators need a Web server designed to work with VRML, HTML, and Java pages and browsers. It also must be capable of supporting thousands of users simultaneously in multiple VRML worlds.

### Need information?

Let Network World provide a quick primer on an important or emerging technology. If you have an idea for Technology Update, contact Beth Schultz by phone at (773) 283-0213 or via the Internet at [bschultz@nww.com](mailto:bschultz@nww.com).



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G l o b e T r o t t e r





## Keep an eye on Ungermann and First Virtual

**Y**our discerning eye has no doubt alerted you to the fact that my column is longer than its previous incarnation. Only you can judge if that's a good thing.

On occasion, I'll use my expanded elbow room to highlight people and companies you ought to watch. This installment involves a company you should know because of an executive who always bears watching. That exec is Ralph Ungermann, who's now shepherding a powerful, if little-known, set of collaboration tools into the marketplace.

You probably know him as the cofounder of Ungermann-Bass, Inc., now UB Networks, Inc. You may also recall the 1994 birth of Ungermann's First Virtual Corp., launched with fanfare as an early contestant in the ATM-to-the-desktop battle.

Since then, First Virtual hasn't garnered much visibility, partly because some early partnerships didn't pan out, but also because 25M bit/sec desktop ATM hasn't taken off. In general, is being beaten about the head these days by short-sighted critics who think technologies such as Gigabit Ethernet have rendered it all but obsolete.

First Virtual is now squarely focused on the collaborative computing market—a wise move because the company has uniquely powerful tools that make it easy for employees to use desktop videoconferenc-

ing, see and manipulate stored video and incoming video feeds, and work together on applications.

Ungermann recently gave me a demo of the system, which is impressive. The video is high quality (none of that jerky, partial-motion PC video stuff that I find simply distracting) and the application-sharing technology makes it easy to walk customers or coworkers through presentations, Web sites or whatever.

These tools work over ATM, and a complete setup isn't cheap—though it's reasonable for the power it offers. Ungermann believes in ATM because he feels today's routed networks won't cut it for multimedia, even with technologies like the Resource Reservation Protocol.

But the infrastructure is almost irrelevant. The key is First Virtual's software, which lets Windows applications tap ATM quality-of-service features, and supports video caching and broadcasting. Among other applications, the system makes for a great sales tool (the First Virtual folks will happily prove that to you).

With some strong new partners such as Bay, IBM and PictureTel, I think First Virtual is likely to move onto the radar screen pretty quickly.

Take a look for yourself at [www.fvc.com](http://www.fvc.com).

John Gallant, editor in chief

[jgallant@nww.com](mailto:jgallant@nww.com)



Network Performance • Jeffrey Kaplan

## Data collection is key to making SLAs work for you

**T**he growth of outsourcing has drawn attention to the service-level agreement (SLA) as a tool for ensuring optimal enterprise network performance. Many network managers use SLAs to evaluate the effectiveness of their outsourcers and other service providers. Some even use SLAs to demonstrate their own ability to outperform potential outsourcers that threaten to take away their jobs. (For more on outsourcing, see story page 43.)

Yet while everyone is talking about SLAs, few users have implemented them successfully. As a result, the value of SLAs is being lost.

SLAs omit the service provider to a predetermined level of performance based on specific criteria. Penalties are typically levied if the service provider fails to meet these commitments.

Business publications and industry consultants have advised network managers to establish SLAs with their end users, as well. This demonstrates the net manager's commitment to providing end users with reliable, high-quality network access. It also gives in-house network support staff a scorecard to grade its performance and fend off potential outsourcing alternatives.

Ironically, SLAs often prove to be more of a source of additional contention between customers and service providers than a final arbiter. This is due to two major weaknesses in the current approach to SLAs.

First, most net managers are unable to generate the solid baseline data necessary to quantify the historical performance of their enterprise networks. As a result, many organizations set unrealistic SLA goals and objectives with outsourcers and service providers.

Second, in many instances neither the customer nor the service provider has an effective mechanism in place to continuously measure network availability and performance during the contract period to determine if they meet the SLA stipulations.

Today's network performance management tools have not been of much help. Most sit in shrink-wrap in a corner of the net manager's cluttered office. Tools that have been installed often are not kept up-to-date with the continuous flow of vendor upgrades. Often they don't cover all the key components of an organization's enterprise network, or the tools fail to collect sufficient historical data to permit

meaningful analysis. And few net managers have the time to continuously update the system directory of these tools to reflect ongoing moves, adds and changes within their networking environment. Given the lack of solid data, it is impossible for organizations to establish realistic service-level expectations. The same problems that make today's network management tools ineffective in generating base-line data make them equally cumbersome for measuring the actual performance of a service provider over time.

Implementing successful SLAs is possible. It requires a clear understanding of the simple performance metrics that ensure network optimization, such as buffer failures, discards, error rates, free memory and response-time trends.

It also requires a data collection mechanism that can generate enterprise-wide information continuously on a real-time basis—without consuming an excessive amount of the net manager's time. Unfortunately, today's off-the-shelf tools can't do this, so you have three choices: You can invest the time to devise your own solutions, push tool vendors to make products that meet your needs or look at new network services designed to generate network performance data.

SLAs can be powerful mechanisms to fend off outsourcers or manage them for maximum success. They can also be useful scorecards for serving your end users. However, you must take the important steps necessary to make them work.

Kaplan is the director of strategic marketing for International Network Services, a Sunnyvale, Calif.-based network services company. He can be reached at his Boston-area office at (617) 376-2430 or via the Internet at [jff.kaplan@INS.COM](mailto:jff.kaplan@INS.COM).



Send letters to [networkworld.com](mailto:networkworld.com), c/o John Gallant, editor in chief, Network World, 161 Water Street Road, Framingham, MA 01701. Please include phone number and address for verification.

### Apple shines

In reference to Mark Gibbs' column, "Of greeting cards, broken laptops and disgruntled users" (Sept. 23, page 74), I would like to point out that the problems Gibbs mentioned are not found on the MacOS and Apple Computer, Inc. hardware.

The floppy drive door opens and shuts without going on strike. The touchpad responds to touches, not glitches. The battery monitor software reports battery power, not design flaws. I, 800-APPLE-SOS calls you back; Macintosh users complain when response times drop to a week instead of the usual 24 hours.

The Macintosh experience just

# Cisco pursues a vision of being all things to all users

**C**isco Systems, Inc. wants to take over the world. All right, not the whole world, just the internetworking infrastructure—from your wiring closet, across your campus, over the wide area and onto your remote sites. And the company wants to be the No. 1 internetworking supplier to organizations of all sizes, from large corporations and service providers to midsized and small businesses.

How does Cisco plan to accomplish these ambitious goals? With a two-pronged approach, Cisco senior managers said at a recent analyst meeting.

For corporate customers and service providers, Cisco is emphasizing a systems approach that hinges on software-based services, such as security, quality-of-service (QoS) support and management. Senior officials are striving to re-create the end-to-end service and support model that made IBM so successful with SNA.

For midsized and small businesses, Cisco is borrowing from Microsoft Corp.'s playbook in trying to create a suite of networking products under a common brand name, NetBeyond. Encouraged by the successful launch of its CiscoPro line, Cisco is eager to capture a bigger share of this large market and challenge rivals such as 3Com Corp. Cisco is in a position to execute its vision. The company has developed or acquired most technologies and products it needs. It clearly understands the challenges customers face in trying to evolve their networks to meet new application demands, such as electronic commerce and desktop videoconferencing, and create a network that can adapt to application requirements. And, due to its dominance of the router market, Cisco has an installed base of customers that lend it momentum.

For many organizations, Cisco's single-vendor solution song has a definite appeal. The networking industry is in a dynamic state, characterized by an explosion of networking technologies, from LAN switching to ATM to Asymmetric Digital Subscriber Line; the emergence of video, multimedia and related QoS standards; and the rising importance of the Internet and corporate intranets. For example, attempting to get a two-level prioritization scheme for network traffic to work across a multivendor network consisting of LAN and WAN links is a near impossibility today.

Cisco proposes to solve this complex integration problem by offering a consistent set of services that span all of its equipment, from the local wiring closet across the WAN. The company will likely develop on its vision and provide real value.

But in modeling its strategy after IBM and Microsoft, Cisco is putting itself in the

camp of companies we love to hate. Big Blue shops undoubtedly can recall the captive feeling that comes from being overly dependent on one supplier. So can many of Cisco's router customers, who became wedded to Cisco's Internet Gateway Routing Protocol but resented the exorbitant prices they paid.

Despite its move into the switching market, Cisco remains a router-centric company, as evidenced by its CiscoFusion architecture for campus networks and its Tag Switching technology for the Internet. Tag Switching is essentially a routing technology and will turn Cisco's StrataCom, Inc. BPX switch into a routing device. Due to Cisco's large installed base of routers in the Internet, as well as its push with BPX, Tag Switching could become widely deployed if it operates as advertised. Whether other vendors will implement it depends on whether Cisco makes it a truly open technology. It's questionable if Tag Switching will become a public domain technology. Cisco has published several documents relating to Tag

Switching as requests for comment and stated that it wants the technology to become an IETF standard. However, the company has also indicated that it views Tag Switching as significant intellectual property, which it will likely patent and then allow other vendors to license.

Cisco's schizophrenia about Tag Switching is not unlike Microsoft's dance with ActiveX. Both companies want to give the appearance of having open technologies while maintaining control of them.

Although single-vendor solutions do work, it's clear that vendor-specific technologies cannot provide the interoperability so essential to the success of the "Net and corporate intranets.

Cisco will best serve its customers by offering value-added services atop standards-based technologies. Whether it or so remains to be seen. Meanwhile, customers have a real option at ATM, partly because its development is in the hands of an independent body. ATM has broad industry support, can operate in both LAN and WAN environments and enables a range of services. Some organizations will be willing to trade vendor independence for the cradle-to-grave support Cisco promises. Each should make that decision based on its own needs—and with an eye to the lessons of history.

*Petrosky is a senior analyst with The Burton Group, which focuses on network computing technology and architectures. She can be reached in her San Mateo, Calif., office at (415) 572-0560 or via the Internet at petrosky@btg.com.*

works.

Anthony Ym  
Programmer  
The Kernal Group, Inc.  
Austin, Texas

## For the record

Your review of NetWare 4.11 (Oct. 7, page 1) states that Novell, Inc. has licensed Preferred Systems, Inc.'s (PSI) DS Standard program and has related it to DS Migrate for NetWare 4.11. To clarify what is included in NetWare 4.11 is a subset of DS Standard, called DS Migrate.

DS Migrate has about 20% of the functionality of DS Standard and provides users with the ability to perform a quick migration to Novell Directory Services (NDS). For sites requiring more robust migration capabilities—such as tree modeling, tree merging or applying naming conventions—or for sites already using NDS, Novell approves the full implementation

tion of DS Standard.

I hope this helps clarify the differences between DS Standard and DS Migrate, and shows how DS Migrate fits into NetWare 4.11.

Randi Perlman  
Marketing communications manager  
PSI  
West Haven, Conn.

## Mail call

Your Technology Update article "Internet, intranet computing brings in new wave of messaging standards" (Oct. 14, page 49) states: "POP is an Internet mail server protocol that provides message transfer to clients using SMTP." This is incorrect.

Post Office Protocol (the current version is called POP3) is a mailbox server program used to manipulate a user's mailbox on a remote machine. It is normally used by a network mail user agent, such as Qualcomm, Inc.'s

Eudora or Netscape Communications Corp.'s Netscape Mail Server, and is totally independent of—and serves a different function than—Simple Mail Transfer Protocol.

POP is used to retrieve, read and delete messages from a remote mailbox using TCP Port 110. SMTP is normally used by mail transport agents such as sendmail, small and Multichannel Memorandum Distribution Facility to send (or store and forward) mail to other MTAs on the Internet via TCP Port 25.

More recent network mail clients now use nameservice standards to perform the MTA function on their own—they use SMTP to forward mail independently of an MTA.

Think of it this way: SMTP is the postman who carries the mail to your mailbox somewhere on the Internet; POP3 is you collecting the mail and bringing it from


your mailbox into your house. Unfortunately, POP3 cannot put a letter into your mailbox to be sent out, and if, like the postman, SMTP can't find your mailbox, it will simply take the

letter back to the post office (MTA).

Kirk Smith  
Senior programmer/analyst  
Management Services Co.  
Fayetteville, N.C.

## Teletoons





"We're not satisfied with just being the first commercial ATM-based Metropolitan Area Network in Canada. We want to be the largest. Anything's possible when you find a partner with the technology, and the energy, to keep up."

Andrew Kyle  
President  
MetroNet



**WHY  
FORE ATM IS  
The Fastest  
Way  
TO PUMP DATA  
From The Field  
To The  
FRONT OFFICE.**

That's Andrew Kyle of MetroNet, an alternative network access provider. MetroNet uses a FORE ATM network to pump data at the ultra-high speeds its customers demand.

"When an oil company conducts a million-dollar seismic test, conventional data transfer can take days. Now, with FORE ATM, a 150 megabyte file can be sent via MetroNet to a workstation downtown in about one minute flat."

Pretty slick. No wonder MetroNet provides connections to so many oil companies, internet service providers, and disaster recovery specialists. "They transfer tons of data; we save them days of work."

Today MetroNet connects 15% of Calgary's downtown office space. Soon it will be 50%.

"And, with FORE ATM, we will have a platform for seamlessly integrating data, voice, and video for our clients down the road."

You, too, can break new ground with FORE ATM. For a MetroNet network profile and a free Guide to ATM, contact us at 1-888-404-0444, internet: [info@fore.com](mailto:info@fore.com) or <http://www.fore.com>.



*At the Forefront of ATM Networking*

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*A guide to choosing an outsourcer and building a lasting relationship.*

# Shaping your outsourcing plan

By James Kobelius

DAVID PETERIS

**T**hink of any network IS task on your plate—from filling a knowledge gap, providing temporary help or simply performing routine chores—and you can bet there's an army of outsourcing vendors ready to make a pitch for your business.

In weighing your options, you have to develop a long-range outsourcing strategy, identify your exact requirements, then sort through the ever-expanding range of providers.

Once you've signed on the dotted line, your main concern becomes making sure your selected vendor lives up to its side of the bargain.

It is those issues we address in this special section. In a series of Buyer's Guide articles, we offer advice on how to identify the various types of outsourcers and some criteria by which to evaluate the players. We also help you identify when its time to consider outsourcing and explain how you can develop an outsourcer acquisition strategy.

But all that's only a first step. The critical factor in ensuring that an outsourcing relationship realizes its promise is to effectively manage it. We've checked in with experts on every side of the issue to bring you their sage advice.

So please read on, enjoy and, most of all, learn.

## In numbers comes diversity

A look at the many stripes of the outsourcing players.

Vendors of all kinds are jumping into the outsourcing arena. All types of carriers and computer vendors are transitioning internal service organizations, once focused only on handling their own offerings, into business units aimed at installing and managing all forms of multivendor networks. Likewise, systems integrators are now offering to provide ongoing network management services once they complete a turnkey installation project.

They compete against established players, powerhouses such as AT&T Solutions, Computer Sciences Corp. (CSC), Electronic Data Systems (EDS), IBM's Integrated Systems Solutions Corp. and MCI Systemhouse, formed by the recent merger of MCI Communications Corp.'s outsourcing arm and SHL Systemhouse, Inc.

The vast number of players in the market makes it difficult, if not impossible, to take a definitive census of the industry, much less include all the vendors in a single Buyer's Guide. However, we invited more than two dozen of the top outsourcing firms to supply information about their companies and services for the chart on page 45. A number of key players, including CSC and EDS, declined our invitation, often saying the requested information was proprietary.

But our research made it clear that a great number of network outsourcers got their start by offering ser-

vices that support or extend a related business. This is important to know because their current strengths are typically still in that core area.

For example, local and long-haul carriers have diversified from their roots of providing simple voice and data transport. Carriers such as AT&T, via its AT&T Solutions division, and Ameritech Corp. are now more than glad to design customized voice, data and video networks for your company; overlay and implement that design on their public network infrastructures; and then manage the whole thing for you.

Computer vendors that have long provided hardware and software plus information technology (IT) outsourcing, such as Bull HN Information Systems, Inc., Digital Equipment Corp., IBM and NCR Corp., are now installing, configuring, and even running entire LANs and WANs. Increasingly, these vendors are pushing beyond data networks into supporting voice, video and multimedia.

That melding of IT and network outsourcing appears to be a benefit for you. "A good percentage of network outsourcing contracts include application development, client/server migration, data center management and other IT functions," says Alexandra Whitehead, practice leader in IT outsourcing at G2 Research, Inc., a consulting firm in Mountain View, Calif.



### INSIDE

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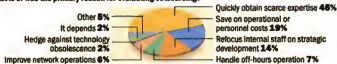
52 Management tips from the trenches



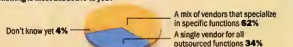
## Reader views on network outsourcing services

(Based on 100 interviews)

What is or was the primary reason for evaluating outsourcing?



Which of the following is most attractive to you?



*"You outsource because you aren't good at everything, so I don't think any other company can be good at everything."*  
*"Competition keeps everyone honest."*  
*"You get better quality from specialists."*  
*"You get choices, and you can play one against the others."*

*"We only outsource WAN management, so we wouldn't need to have multiple people."*  
*"I don't have the time to deal with a lot of people."*  
*"There is one point of contact, and you can gain leverage over a single vendor."*  
*"We try to move to a single relationship in everything we do. It reduces the overhead, there is more feedback from them, and there is less finger-pointing."*

## WOULD YOU HIRE A COMPANY THAT HAS TO SUBCONTRACT TO MEET CONTRACTUAL OBLIGATIONS?



*"We would consider letting an outsourcer subcontract as long as the primary supplier does it to get the expertise we require instead of trying to mask a shortcoming."*  
*"We've had experience with that situation, and we haven't had any troubles at all."*  
*"The end product is the service they deliver, so it's up to them to determine how to provide it."*  
*"Yes, but its highly dependent on it being economical and what the subcontractor can bring to the table."*

*"If I want the service of a company that will act as a subcontractor, then I would go to them in the first place."*  
*"I'd be wary of the oversight the primary vendor has. Often, the primary contractor doesn't have the people on staff when they bid for the contract. So, when they win the bid, they try to get people who can do the work as quickly as possible. Those people might not be the most sufficient candidates."*  
*"Based on past experience, we hired a company that couldn't control the subcontractors and there was a less of quality."*  
*"We have done it previously and found the subcontractors lack a sense of urgency."*

How likely are you to outsource the following functions? (Highest possible score of 5)



How important are the following capabilities to you when selecting an outsourcing vendor? (Highest possible score of 5)



The survey was conducted by Focus Data, an independent market research firm in Framingham, Mass. that gathers primary data concerning the enterprise network environments and needs of end users. To purchase full survey results, call Mona Dabbon at (508) 626-2556, or send E-mail to mdabbon@focusdata.uranet.com.

However, IT tasks such as developing application software and running the corporate data center still account for 60% of the \$40 billion spent by U.S. firms on IT outsourcing this year, according to the Outsourcing Institute, a nonprofit group in New York. Network and desktop management make up the balance.

Then there are systems integrators that have taken on network management as a related service offering. BBN Planet, Cap Gemini America, CSC, EDS, Entex Information Services, Inc., International Network Services (INS), Parant, Inc., Racial-Datcom, Inc. and Systems Management Specialists fall into this category.

Many of the systems integrators concentrate on data networks. However, they are increasingly seeking voice network outsourcing work and often team up with carriers to get it.

A good example of this is the Pinnacle Alliance, which is an attempt to bond IT consulting, application development, and system integration expertise of CSC and Andersen Consulting with the telephone know-how of AT&T Solutions and Bell Atlantic Network Integration. Another example is the alliance between IBM and Ameritech's GlobalDesk network management outsourcing business.

## WHAT DRIVES YOU TO OUTSOURCE?

- ▶ Continuing trend toward distributed computing
- ▶ Increasing network complexity and maintenance requirements
- ▶ Increasing dependence on networks for mission-critical activities
- ▶ Soaring support costs
- ▶ Globalization

SOURCE: INPUT, INC.'S OUTSOURCING INFORMATION SYSTEMS PROGRAM, MOUNTAIN VIEW, CALIF.

Systems integrators that are getting into outsourcing come in all sizes and specialties. Some of the firms with more noteworthy specialties include BBN Planet, a traditional Internet access provider that has branched into Web site development, Web server hosting, firewall monitoring and electronic commerce support; Entex, a desktop systems integrator that now provides remote and on-site WAN/LAN monitoring and support services; and INS, a systems integrator that manages network services for public carriers and now offers network consulting as well as design services to end users.

Of course, there are firms that remain true to their original charter. NetSolve, Inc., which offers a wide variety of WAN monitoring services, is an example. ■

## Your ever-expanding options

The decision of when to outsource gets more complex.

More players in the game. New twists on the outsourcing concept. A plethora of staffing choices. It all adds up to more questions to mull when deciding whether to outsource.

Just a few years ago, outsourcing was easy to understand because it was a game of dueling gladiators. Back then, outsourcing was strictly defined by the type of headline-grabbing megadeals as the \$1.1 billion, 10-year contract that AT&T Solutions just landed to take over complete operation of Tectron, Inc.'s worldwide network (NW, Sept. 23, page 27).

Not so now. In fact, over the past few years, a number of specialty firms have begun the growing trend of outsourcing only specific network tasks — such as moves, adds and changes, or simple LAN administration — a practice that has spawned the term "outsourcing."

This trend also includes turning over chunks of the overall organization — such as the help desk or network monitoring — to an outsider, but retaining all else. Then there's a form of outsourcing where you farm out critical upfront projects — such as network application development and systems integration — to specialists, but retain responsibility for daily operations.

With so many options, how do you know when to outsource? Simply put, con-

sider outsourcing a particular network function when it will:

- Reduce or control operational costs.
- Improve operational management and performance.
- Give you as-needed access to sophisticated technical expertise.
- Help you keep pace with rapid technological change while controlling technical risks.
- Refocus the business on core competencies.
- Free up internal resources to focus on strategic IT planning and business-process reengineering.

If you're still unsure about outsourcing on a large scale, you can always start with something mundane — such as pulling telephone cable or maintaining desktop PCs or workstations. Likewise, if you're in need of a quick fix for a thorny problem, your first foray could be hiring someone for that leading-edge task, such as monitoring your nationwide frame relay network or designing and hosting your Web site. You may opt to pull that function back in-house once you gain the internal knowledge, but at least you won't totally fall behind the curve.

If all goes well, you could move up the ladder and consider outsourcing all the functions that fall between a simple task and a full-fledged turnover of your entire operation. These in-between functions

## NEARING THE HALFWAY POINT

Desktop and network management now represent 40% of what's spent on total IT outsourcing, according to the Outsourcing Institute in New York.



## NETWORK OUTSOURCING SERVICES

Company	Profile	Existing contracts	Elements sold, resold or leased	Resource reduction	Pricing type
	Percentage of parent company revenue No. of employees No. of years providing services Current no. of contracts Core business	Avg. length of base contract (years) Avg. no. of option years Avg. value over contract life Avg. no. of customer sites Avg. no. of network nodes	Cable and wire Equipment Monitoring Fire/water/safe Transmission services Software	Staff transfer Staff rehiring Systems transfer or migration	Fixed only Variable only Fixed/variable
Ameritech Corp. (800) 840-4444	5% 900 2 12 Help desk, installation, facilities/site management, business process in nontechnical areas, and cable and wiring	5 1 \$23M 4E NA	● ● ● ● ● ●	100% 80% 25%	5% 95%
AT&T Solutions (930) 440-6667	(1) 11,000 1.5 24 WAN management, network monitoring, help desk, network control center management, and employee and customer care	6.2 3 (1) 508 291	● ● ● ● ● ●	90% 100% 85%	100%
BBN Planet (800) 472-4565	80% 1,900 25+ 3,500 Network monitoring, Web site design and hosting, systems integration, application development and/or maintenance, and network control center management	1 NA (2) NA 10-12	● ● ● ● ● ●	(1) (1) (1)	20% 60% 20%
Cap Gemini America (212) 944-6464	68% 2,700 20 (1) LAN management, PC/workstation management, application development and/or maintenance, systems integration, and client/server systems conversion and migration	(1) (1) (1) (1) (1)	● ● ● ● ● ●	(1) (1) (1)	(1) (1) (1)
DecisionOne Corp. (888) 287-9202	NA 3,900 27 40,000 Hardware services, help desk, network monitoring, LAN management, and data center and/or server management	2.5 0 \$150K 5 1,500	● ● ● ● ● ●	100%	100%
Digital Equipment Corp. (800) 344-4825	(1) 2,000 10 200+ Data center and/or server management, PC/workstation management, help desk, LAN management, and network control center management	4 2 \$1M-\$3M 20 400	● ● ● ● ● ●	10% 5% 50%	50%
Eaton Information Services, Inc. (914) 935-3600	15% 3,300 3 (1) Systems integration, PC/workstation management, help desk, installation, LAN management	4.5 3 \$7.2M 12 11,000	● ● ● ● ● ●	63% 64% 30%	30% 60% 10%
IBM Global Network (800) 455-5056	(1) 1,100 0 175 WAN management, network control center management, network monitoring, help desk, and remote network access site transfer and retire	7.5 (2) (2) 250 (2)	● ● ● ● ● ●	20% 20% 20%	90% 10%
Intermarket Network Services (888) 487-8100	100% 400+ 5 (1) Planning and design, installation and implementation, network support, project management, and problem diagnosis and troubleshooting	(1) (1) (1) (1) (1)	● ● ● ● ● ●	(1) (1) (1)	(1) (1) (1)
INCR Corp. (513) 445-3137	.05% 50 2 45 Network monitoring, LAN management, data center and/or server management, PC/workstation management, and WAN management	2 NA \$300K 20 100	● ● ● ● ● ●	100%	100%
Intellinet, Inc. (800) 638-7658	(1) 80 4 100+ WAN management, network monitoring, Internet service, and installation	3 NA (1) (1) (1)	● ● ● ● ● ●	100%	100%
Parasoft, Inc. (800) 752-3475	98% 700 5 10 Client/server systems conversion and migration, data center and/or server management, PC/workstation management, installation and systems integration	(1) (1) (1) (1) (1)	● ● ● ● ● ●	5% 5% 25%	75%
Racal Datacom, Inc. (800) 722-2555	32% 700+ 40 3,742 Application development and/or maintenance, demand and repair services (noncontract), installation, network monitoring and training	2 5 \$240K 500 500	● ● ● ● ● ●	95% 5%	95% 5%
Systems Management Specialists (714) 850-6600	87% 340 6 23 Data center and/or server management, application development and/or maintenance, network control center management, help desk, and client/server systems conversion and migration	4 1 \$2.5M 46 3,800	● ● ● ● ● ●	80% 80% 90%	13% 12% 75%

Product names highlighted in color were selected for the Short List.

Footnotes: (1) Proprietary (2) Non-NA Not applicable \* Percentage of existing contracts

Editor's note: The following companies declined our invitation to submit material for this chart: Bell Worldwide, Computer Sciences Corp., EDS, INET and MCI SystemsHouse.

CHART COMPILED BY NAFISON

include application maintenance, client/server systems migration, data center operation, PC and workstation management, facilities and site management, LAN management, network monitoring,

off-site backup and recovery, remote network access, user training and support, and WAN management.

Another important question to answer is whether the functions you outsource are critical enough to warrant hiring someone 24 hours a day, seven days a week. Alternatively, you just may need someone to help out during business hours or after hours.

You'll also need to decide whether you want the outsourcer's staff at your site or not. Having outsourcer staff on-site is usually more expensive than off-site because the former typically requires the outsourcer to provide staff dedicated to serving its contract with you, whereas off-site personnel can be split among a few different contracts.

How you get charged may also play a role in deciding when it's time to outsource. Some outsourcers charge custom prices for their service packages — based on a complex range of negotiated factors

— while others charge on a per-task, per-transition, per-node, per-site, per-desk-top, or time and materials basis. You might find outsourcers with tiered pricing structures, broken down by basic, enhanced and premium service levels. In such cases, what you usually get for premium prices is shortened turnaround and response times, increased deployment of on-site personnel, and increased technical coverage and skill levels.

You may also want to consider the politics of outsourcing. Obviously, outsourcing

is a complex business decision.

If you want to farm out critical network support functions, it might take anywhere from a few months to a couple of years before your corporate brass warms up to the idea. If you just want to call in some help for mundane chores — such as doing adds, moves and changes — you might have a tougher time selling the concept to your staff, who could regard it as a ruse for putting them out of jobs later when you finally decide to turn everything else over to the outsourcer. ■

## WHERE THE IT OUTSOURCING BUDGET GOES

Based on a survey of 126 IT executives



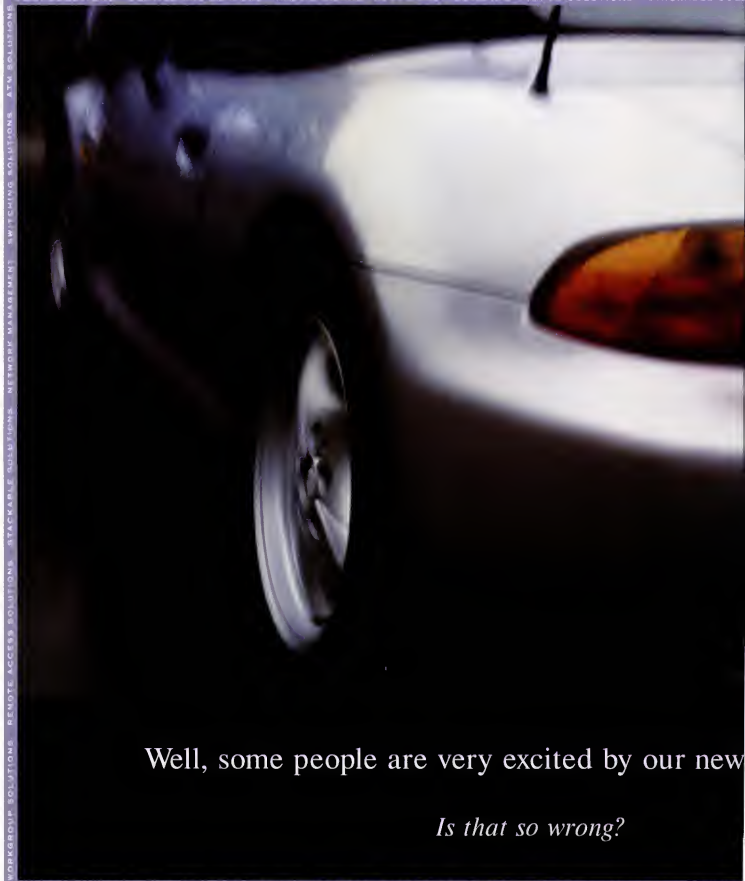
SOURCE: OUTSOURCING INSTITUTE, NEW YORK

## Striking the deal

How to get an outsourcing contract you can live with.

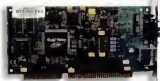
To make sure you get the biggest bang for your outsourcing buck, you need to have a well-thought-out acquisition strategy.

This entails using a request for proposal to define your requirements, creating an effective way to review those RFPs and then spelling out your expectations



Well, some people are very excited by our new

*Is that so wrong?*



The 3Com TokenLink® Velocity™ ISA Network Interface Card was bound to get some people a little excited. That's because it really is a true innovation. For the first time ever, Token Ring networks can get the high performance that Parallel Tasking® technology provides. It's the same advantage 3Com's given to over 25 million Ethernet users.

Parallel Tasking technology gives you the fastest network throughput available as it pipelines data between the PC and the network. So you can transfer data faster than ever before.

The 3Com TokenLink Velocity ISA NIC offers more than just Parallel Tasking technology. It's backwards compatible with existing drivers, applications and network operating systems. And if you're considering switches, it has Full Duplex/DTR capability, which lets you send and receive data simultaneously.

To help you get your hands on one of these innovative new cards, we're offering evaluation pricing for just \$99.\*

Call 1-800-NET-3Com, Option 4 to get yours.

And learn why Parallel Tasking technology is something to get excited about.



I ♥ My New 3Com Parallel Tasking  
NIC For Token Ring Networks

product.

for the outsourcer in stark letters.

Many network functions are too important to entrust to the first outsourcer that sends you a glossy brochure. So be sure to have three alternate bids for each procurement. Then make sure that the technical proposals address the requirements specified in the RFP on a point-by-point basis. Your rule of thumb should be that any outsourcer that can't describe the work clearly in its technical proposal probably can't perform it well, either.

A good way to make sure RFPs are up-to-snuff is to establish an expert selection panel to review them. The panel should comprise a mix of technically savvy people and some experienced contract negotiators.

If the contract you're awarding is large enough, you should also consider bringing in a consultant with a track record of successful network outsourcing acquisitions. This panel should help you separate the proposals with considerable technical and management depth from those that simply read well, promise everything, but display a shallow grasp of your outsourcing requirements.

When it comes time to hammer out an agreement, consider structuring a deal with option years instead of a simple fixed term. No matter how attractive the outsourcer, you should always give yourself a contractual back-door exit case the relationship doesn't work out. A way to do that is to have the outsourcer work for an established period, and pick up option years if it meets your performance standards.

If the outsourcer is not up-to-snuff, you

can easily discontinue the contract at the end of the base period, then seek another vendor or bring the function back in-house. However, bear in mind the difficulties of disentangling yourself from an entrenched outsourcer.

"The user has high switching costs associated with going from one outsourcing vendor to another," according to Peter Bendos-Samuel, president of Everest Software Corp., a Dallas-based provider of software that helps companies manage outsourcers.

To protect yourself further, you should never outsource the core financial, planning and management oversight associated with a network management function. To do so would be to cede too much control to an outside firm.

## A HIGH-GROWTH AREA

Spending on network outsourcing will grow from \$2.6 billion in 1996 to \$8 billion in 2001, predicts Input, Inc.'s Outsourcing Information Systems Program in Mountain View, Calif.

It is critical that you retain key managers and technical experts in-house who can inspect and critique every aspect of outsourcer performance and have access to the full range of contract operational data. You should budget no less than 5% to 7% of the outsourcing contract value on in-house management and oversight, says Chuck French, manager of consulting at META Group, Inc.'s Sourcing Strategies Consulting Practice in Reston, Va.

How do you know if an outsourcer is performing according to your expectations? You create very detailed service-level agreements and performance metrics, specifying everything from how fast you expect work to be done to what you consider to be a top-quality job. Then you should tie performance metrics to the

outsourcer's compensation (see story, page 49.)

Aside from monitoring performance, you'll want to continually establish benchmarks that tell you whether you can cover the costs of the same functions internally for less than what you pay the outsourcer.

"Look for a low-cost outsourcer and then benchmark its costs every six months to a year," Bendos-Samuel says. If you don't, he claims, the outsourcer may take advantage of you by raising prices over time. If you do, you'll have some flexibility

to bring prices down over time should the benchmark justify a lower cost.

To keep even tighter control over the outsourcer, limit the amount of work that can be subcontracted to other firms. On larger deals, outsourcers often hand out bidding teams that divide up functional responsibilities under the resulting contract. If taken too far, subcontracting can lead to finger-pointing, excessive costs, slow response and other problems that nullify the benefits of outsourcing in the first place. ■

## Evaluation time

Pick outsourcers by using this criteria.

You've looked at all your options, gone through the numbers six ways to Sunday and reached a definitive conclusion: Outsourcing makes sense. Now comes crunch time — selecting your outsourcing vendor.

The following evaluation criteria are applicable no matter how big or small your outsourcing requirements.

First and foremost, examine the outsourcer's management team because the outfit will only be as effective and responsive as management allows. Interview each member of the team and review their resumes and backgrounds. Determine whether, when and how these particular individuals have worked together in the past.

geographic extent. It's especially valuable if the firm can provide references on work performed for others in your industry.

■ **Skill base, subcontractors and strategic partners.** Ask the outsourcer for a corporate skills matrix to make sure it has personnel with the capabilities and experience required to support your enterprise network. Request resumes for chief technologists, as well as for the principals with subcontractors and strategic partners the outsourcer plans to use. Require letters of commitment from all subcontractors and strategic partners affirming their good-faith intention to work under the contract.

■ **Geographic scope.** Determine whether the outsourcer, its subcontractors and

### WHAT OUTSOURCING CAN DO FOR YOU

Thanks to an increased number of vendors, you can negotiate more flexible outsourcing arrangements than in the past, including the ability to:

- ▶ Quickly obtain external talent in response to changing business conditions.
- ▶ Shore up your company's bottom line by using low-cost contractors for chores such as pulling cable, managing workgroup LANs and desktops, and providing field service and support for equipment, including routers and gateways.
- ▶ Move swiftly into new technologies by linking up with leading-edge systems integrators for installation, and then turn out day-to-day operational responsibilities to the integrator's managed services staff.
- ▶ Get out of network management altogether, if you want, by handing that responsibility over to an expert third party.

Other criteria include:

■ **Financial strength.** If the outsourcer is publicly traded — as are most of the companies that accepted our invitation to be included in the chart on page 45 — get their most recent annual report and Securities and Exchange Commission financial filings. If they're privately held, check their credit history and determine whether they have recently filed for bankruptcy protection. Require privately held firms to disclose their ownership structures, investors and lines of credit so you can determine if they have the wherewithal to cover any capital investment that may be necessary to meet your needs. Also find out if they can bankroll what it'll take to rehire some or all of your staff and/or acquire select portions of your network infrastructure.

■ **Customer references and related industry experience.** Ask for at least three customer references on contracts of similar duration, complexity, technical scope and

partners have offices in all countries, states and cities where you require on-site support.

■ **Price.** Require outsourcers to prepare cost proposals in a standard format — one you can use to make apples-to-apples comparisons among the bidders on a function-by-function or item-by-item basis.

Typically, you wouldn't base an outsourcing decision on price alone — the procurement is too complex, technical and not commoditized enough for that — but you at least want to make sure that the winning bidder's charges are in the competitive range.

### NetworkWorld

## Short LIST

## Network outsourcing services

This Short List highlights the vendors Network World recommends you examine closely when you want to farm out network management, administration or operational support services. While there are hundreds of outsourcing, only those in the chart on page 45 were considered. Moreover, we selected vendors that can take over your entire network or as much of it as you want to give up. Your needs may differ.

**AT&T Solutions**, a wholly owned AT&T subsidiary, is perhaps the vendor par excellence in our chart. The firm has more than 11,000 people devoted to supplying a broad mix of voice, data and video network management outsourcing, systems integration and consulting services in more than 100 offices worldwide. The company more often than not will rehire your staff and acquire your equipment under contract terms, which is good if you want to turn over your entire operation. AT&T Solutions uses a 24-hour-a-day, seven-days-a-week remote monitoring and customer support center to keep track of what's happening on the worldwide networks of its client.

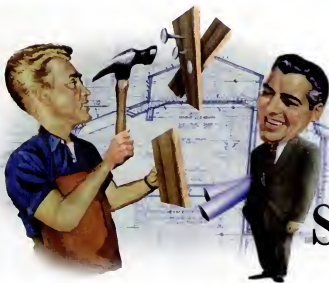
**IBM Global Network** has the experience to meet just about any network management outsourcing, consulting and systems integration need. The firm has around 1,100 employees serving more than 175 clients in about 100 countries. Under the typical contract, the company takes responsibility for managing voice, video and data communication services for a network with around 250 sites. A remote monitoring site is used to ensure the IBM Global Network delivers consistent service levels. The company is committed to making the latest technology available to its clients, as evidenced by its installation of an international ATM network.

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*How to manage your  
outsourcing contractors*

# Ensuring a sound structure

By Elisabeth Horwitt



**B**lue Cross/Blue Shield of Massachusetts and its outsourcing vendor, EDS Corp., decide on major upgrades to the health insurer's systems pretty much the way a husband and wife decide whether to buy a new refrigerator. One partner will come to the other with an idea, then the two sides thrash out the pros and cons. "It's a fair balance," says Dennis McIntosh, Blue Cross' vice president of operations and IS.

This may seem like a rather informal mode of negotiation between a major corporation and the outsourcing vendor in charge of its information technology (IT) operations. Appearances, however, can be misleading.

Blue Cross/Blue Shield's outsourcing relationship can be flexible and open precisely because it is rigorously structured by contract and assiduously managed by a committed team of in-house IT people.

"When EDS took over management of our systems back in 1991, a large number of our employees were outsourced to them," McIntosh recalls. However, the regional health insurer retained a small management group of about 30 to play three crucial roles: provide leadership within the company on matters involving EDS, plan technology strategy and act as "brokers who bring together the business user and the right piece of technology."

Blue Cross/Blue Shield's situation is far from unique among long-term IT outsourcing deals—particularly among ones that work well for the customer.

Indeed, outsourcing project managers were pretty much unanimous that, in order to do their jobs successfully, they need all of the following:

- Knowledge of what the outsourcing vendor is doing and should be doing.
- Power to get the vendor to listen and respond to the customer's needs.
- Effective communications channels to work through inevitable problems, differences and changes over time.

As is typical in the business and IT worlds, commitment comes down to dollars and cents. In the case of outsourcing management, companies need to cough up salaries for a team of project managers to take full-time responsibility for the outsourcing contract and the vendor relationship.

Unfortunately, only about 30% of outsourcing customers "recognize the need to set up a group to work

with and manage outsourcers," says Peter Bender-Samuel, president of Everest Software Corp., a Dallas-based consulting and software company.

Blue Cross' McIntosh agrees. "I think a lot of outsourcing arrangements all over the country are an over-the-fence type of situation" in which the customer tosses far too much control to the outsourcer, he says.

Nor will it work to simply assign just anyone to the job, Bender-Samuel emphasizes. "Everybody has a contract manager, but that doesn't mean [that person] is empowered to do anything," he says. Too many companies make the mistake of "assigning a junior clerk to manage a multimillion dollar contract. The outsourcer will just ignore [that person] and go around them."

#### Meeting of the minds

The crux of the relationship between outsourcing vendors and in-house project managers is regular meetings. These become vehicles for the two sides to exchange information and make sure their expectations are still in sync. Regular meetings also enable:

- The vendor to deliver status reports on projects and performance reports on the systems it is operating.
- IT project managers to notify the contractors of changes in user needs and business directions.
- Both sides to propose technical changes, bring up problems and work out disagreements.

The Environmental Protection Agency, for example, feels comfortable giving its telecommunications outsourcing vendor, DynCorp, the occasional "open-ended work assignment, and then using the actual

[implementation] process to put in the details," says Dwight Rodgers, project officer for the EPA's telecommunications outsourcing contract. He notes, however, that this kind of informal arrangement works only "as long as we're meeting with them every week."

The frequency of project meetings should be tailored to the type of services the customer is receiving, says Randy Johnson, a principal at Coopers & Lybrand. "If you have an extremely dynamic [IT] environment, meetings can be weekly, or even daily. Or if it's a mainframe data center—pretty standard with no surprises—they could be monthly."

Amoco Canada's data center outsourcing relationship with MCI Systemhouse runs on a complex hierarchy of meetings. "The change management people work together day to day when new systems are going in," says Wayne Bester, manager of IT for the Calgary, Alberta-based energy firm. In addition, a group of supervisors meets weekly "to look at problems, out-

ages and things that didn't run smoothly." And the companies' respective advisory boards get together once a year. Bester says this is down from three to four times a year when the project was initiated. This provides a vehicle for Amoco to keep the outsourcing vendor's high-level people apprised of Amoco's changing business strategy, and for the two sides to discuss opportunities for using technology to further that strategy.

At least some outsourcing projects meetings should include the technical people who actually do the work, McIntosh says, "if you want them to have the same urgency you have" about meeting your needs.

Maintaining effective communication channels becomes exponentially more critical in outsourcing situations that involve two or more outsourcing vendors with overlapping responsibilities.

"Vendors that end up with different pieces [of an outsourcing contract] often are competitive since, by nature, they all want to grow their piece of the business," said Gerard Cunningham, a partner at Deloitte & Touche Consulting Group, which helps set up out-



*Blue Cross' Dennis McIntosh warns against "an over-the-fence type of situation" in which you give the outsourcer too much control.*



sourcing agreements. "So you need to define the rules of the road; your responsibilities, say, each of the vendors," as well as your interfaces with each of theirs and their interfaces with each other.

"Generally, it's a good idea [for the customer] to have the vendors communicate with each other on a day-to-day basis," in a well-defined way, Cunningham says, rather than acting as a regular go-between yourself. "You may want to inject yourself [into a dispute] if things fall apart. Some dispute resolution clauses written into agreements involve third parties, but if it's defined from the beginning how the process changes over time, you shouldn't need that."

The EPA, for example, ran into "difficulties the first year or so" getting its two telecom operations contractors, DynCorp and Lockheed Martin Corp., to work effectively with each other, Rodgers says.

During a major LAN installation several years ago, problems arose when the two contractors didn't communicate enough to ensure that their installation schedules were in sync.

"We told them several times, 'You aren't cooperating enough,'" Rodgers recalls. "We worked hard to get them to do joint meetings." For example, representatives from both outsourcing vendors were brought in on meetings between the supervisor of operations at EPA headquarters and the facilities division responsible for "allocating space to users and the actual timing of moves," Rodgers says.

Furthermore, Rodgers himself, as project officer for the DynCorp contract, acts as a bridge between the two vendors, attending two weekly meetings with DynCorp and one with Lockheed, each lasting about an hour. "They go over the work they are doing for us and we provide technical direction," as well as scheduling updates.

All of this has helped the EPA keep its contractors working together in double harness. However, "we'll need to be on our toes during the next year or so, because we are getting into the contract recompeting period," Rodgers says. This time, due to government restructuring, DynCorp and Lockheed will be competing for one overall headquarters service contract.

#### Knowledge is power

The level of effectiveness of outsourcing project managers during such sensitive negotiations depends, fundamentally, on the depth, breadth and detail of knowledge they bring to the table.

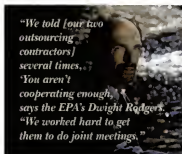
While the meetings themselves, and the vendor's formal reports, can be valuable sources of information, project managers also need to do some homework if they don't want to lose control of the project.

That means tracking and keeping formal records of key aspects of an outsourcing arrangement, such as software, hardware and people provided by the vendor; "what the customer is being charged for," and how the terms of the contract alter over time, says Coopers & Lybrand's Johnson. His company is testing an outsourcing management package from Everest that can automatically document much of the above and "give you at least a foundation" from which to work.

Having this knowledge on record can help a company avoid disaster when it wants to resume control of the contract at the end of a multiyear deal. "In some contracts, if you choose to decouple [from the vendor], you have to buy everything, including software, hardware and people assets," Johnson says. In such cases, the customer doesn't want to depend on the vendor to supply key pieces of data such as "what the labor assets look like, how many

people are on the job and how many hours are billed per month."

Long before the contract terminates, however, situations will arise with the vendor in which the outsourcing project managers will need to leverage large chunks of detailed knowledge, such as exactly what the installation looks like, what the vendor has been doing and what the vendor was supposed to be doing.



"We told [our two outsourcing contractors] several times, 'You aren't cooperating enough,' says the EPA's Dwight Rodgers. "We worked hard to get them to do joint meetings."

To prepare for such contingencies, you need to bone up on the technologies the vendor is introducing, as well as emerging technologies that could prove useful down the road, Bendor-Samuel says. Maintaining this level of expertise in-house can be tough when most of your IT department has moved over to the outsourcing vendor's staff. Without such knowledge, however, an in-house IT group will have to trust the outsourcing vendor's word that a wholesale migration to ATM, for example, is the only cure for lagging networking response time.

Determined to stay in control of its outsourcing strategy, Bester says Amoco Canada has implemented a policy to "only outsource mature functions we understand and where we know what direction we're going." The firm's data center operation fell into that category, but he

says, "our business units felt that [the company] didn't understand client/server well enough to outsource it."

#### Measuring sticks

In addition to keeping apprised of their company's overall technology strategy, project managers need to monitor the nitty-gritty details of the vendor's performance. Here, again, the contract plays a major role. First, it needs to formally define parameters by which that performance is measured. "If it's not measured, it won't get done," Bendor-Samuel emphasizes.

Commonly implemented performance metrics range from the average number of rings before an outsourced help desk operator picks up the phone to classic response time and uptime parameters.

When Camino Health Care turned over its systems operations to IBM's Integrated Systems Solutions Corp. (ISSC), for example, it set up "a number of fairly standard objective measures in terms of response time and uptime for applications, batch turnaround time and windows for maintenance," says Mikelle Streicher, Camino's chief information officer.

Some companies have the vendor provide regular reports on its performance. Camino Health Care, for example, gets monthly reports from ISSC on direct access storage device use by gigabyte, CPU cycles employed, as well as response time and uptime, Streicher says. "We also get a daily status report and a daily change report, which are reviewed in daily meetings, [as well as] by conference call with the Boulder, Colo., center and applications people here in California. So we have multiple opportunities to monitor and resolve issues."

Other outsourcing customers use com-

## Service-level agreements: carrots or sticks?

Three times a year, all work assignment managers at the Environmental Protection Agency's Washington headquarters are asked to evaluate the agency's telecom communications outsourcing contractors. Managers assess criteria such as quality of work, understanding of government requirements and cost containment, says EPA Project Officer Dwight Rodgers.

The evaluations directly affect each contractor's bottom line. A contractor gets a base fee of 2% of cost, but can also receive an award fee of up to 8% for good work. "We find that an effective way to keep the contractor's detailed attention," Rodgers says.

The EPA sits as a shining example of how critical such service-level agreements (SLA) are to any long-term outsourcing deal.

"The intent of the SLA is to put some teeth into the terms and conditions of the contract," says Gerard Cunningham, a partner with Deloitte &

Touche Consulting Group.

"The trend is for SLAs to become more comprehensive, to make the vendor responsible not just for segments of service, but end-to-end service," he says.

"This has become fairly key as a lot of people convert from a conventional network backbone to ATM or frame relay. They want one vendor to wrestle with that migration."

One big decision you need to make up front is whether to use SLAs as carrots that reward an outsourcing vendor for better-than-satisfactory performance, or as sticks that beat the vendor for messing up.

In punitive SLAs, "if the vendor is not performing, payments are made to compensate the client and get the vendor's attention," Cunningham says. And if the



Cunningham

vendor turns out to be a lemon over the long term, the SLA "provides the customer with [the right to] partial or total termination."

On the other hand, building a reward system into SLAs "provides vendors with incentive parameters for exceeding key metrics," Cunningham points out.

That's the route Blue Cross/Blue Shield of Massachusetts is taking. "We have a contract structured to provide opportunities so that if the vendor is meeting one level of performance, we can provide a reward for a performance increase to the next level," says Dennis McIntosh, vice president of operations and IS.

Some outsourcing customers see neither the carrot nor the stick as an appropriate way to motivate vendors.

"With damages, people tend to focus more on [the numbers] and on minimizing risk and out-of-pocket expenses than on solving the problem," says Camino Health Care Chief Information

Officer Mikelle Streicher. Providing incentives causes the same problem. Instead, she says Camino's contact with IBM's Integrated Systems Solutions Corp. (ISSC) "provides opportunities for continuous quality improvement as a way of doing business."

For example, the contract "requires that ISSC, whenever it promotes or pushes a new technology, be responsible for working with us to define how that new technology is going to improve either our availability or uptime, or [address] some business issue," Streicher says. Conversely, if the outsourcing vendor claims that a particular implementation or upgrade is needed to maintain acceptable performance, and "we are recalcitrant enough to still say no, they are relieved of that performance requirement," she adds.

This strategy seems to have worked. In the fifth year of the contract, Streicher reports availability for critical applications has climbed from 98.5% to 99%, "through total quality enhancements."

—Elizabeth Horvitz

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puter-based monitoring tools to look over the vendor's shoulder.

The EPA, for example, put up a computerized board in its Washington telecom and information center, which displayed tables with operational statistics such as the number of outstanding trouble tickets and service orders, recalls James Kobielski, a senior telecommunications analyst with LCC International, Inc., who previously worked for EPA outsourcing vendor DynCorp.

Also on the board were "the number of work items we'd performed that were rated as satisfactory or unsatisfactory by the customer for a given month to date, as well as the average turnaround time for fulfilling service orders and responding to trouble calls," he says. "So the first thing EPA employees saw when they walked in was how well we were performing."

Rodgers' group is in the process of installing Remedy Corp.'s Action Request System trouble-ticketing software at the EPA to "capture trouble-ticket and maintenance histories for both our nationwide and Washington systems," he says. "So if we have LAN or telephone or cable trouble, the repair period is documented." The software is already being used by the EPA in Research Triangle Park, N.C., to

monitor the work of Lockheed Martin.

If metrics provide project managers with knowledge of a vendor's performance, service-level agreements (SLA) in the contract provide the power to keep that performance up to the mark.

SLAs define minimal metrics that a vendor's performance must reach in order to be judged satisfactory. Camino Health Care, for example, set up SLAs that "began at 98.5% availability for applications, and critical applications, like the health care module, had a screen response time of no more than .7 seconds," Streicher says.

While some companies use punitive SLAs that dock the vendor for poor performance, several managers say they prefer the carrot approach of offering rewards for better-than-acceptable performance (see story, page 50).

It's also important to recognize that your needs and available technologies inevitably change. So another critical contract element is a mechanism for renegotiating SLAs and other terms of the relationship to keep up with those changes.

Companies whose contracts neglect to spell out "how to manage incremental work," frequently end up suffering from an ugly phenomenon known as "scope

creep," Deloitte & Touche's Cunningham says. This is a situation where "responsibilities not clearly put in the vendor's column creep back into the customer's column."

Outsourcing vendors naturally point to the opposite scenario, saying scope creep also finds them being asked to do things outside the original agreement. R.V. Rao, portfolio manager with the Internet/intranet practice of Digital Equipment Corp.'s Digital Services Division, suggests that, along with language on how to renegotiate contracts, users also need to budget for inevitable changes.

For example, spend only 80% of your overall budget on the original deal, saving 20% to pay for changes.

Of course, situations will crop up during a multiyear outsourcing deal that even the most meticulously planned contract does not cover.

Amoco Canada, for example, has knocked heads with MCI Systemhouse over "a number of gray areas — small items that they said weren't in the scope of the contract," Bester reports. This was in spite of the fact that the energy firm's data center outsourcing contract had "a clearly spelled-out pricing agreement structure."

"My people finally came to me complaining that they were spending all their time putting together cost proposals for small pieces of work," Bester told the matter to MCI Systemhouse's data center management director. "I told him, 'This has got to stop, it's ridiculous,'" Bester recalls. "He agreed. We went out to dinner, and the next day that stuff quickly stopped."

For his part, Bester "volunteered to give them \$5,000 to \$10,000 a month [extra] if they would do everything we asked, instead of arguing over nits."

What makes this kind of give and take possible, Bester emphasizes, is a very formal hierarchy that defines exactly who gets called in at what point in the escalation of a problem.

Find more info about outsourcing on Network World Fusion, including:

- Our January Buyer's Guide on Internet outsourcing.
- Deloitte & Touche's 5001 outsourcing white papers, which examine contract pricing, management barriers to success, the impact of technology trends and a four-step outsourcing procurement process.
- A link to the Outsourcing Institute's Web site. An independent association, the Outsourcing Institute has a buyer's guide listing hundreds of outsourcing firms, a year-end trends and issues survey, and a bibliography of reports and articles on outsourcing. Charges for these documents range from \$25 to \$300, although members are eligible for discounts and some free merchandise.

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## Tips from the trenches

**Peter Bender-Samuel**  
President of Everest Software, a Dallas-based consulting and software company



Avoid giving mixed signals. "Outsourcing is driven by everyone in a corporation," so the outsourcer can get "conflicting, confusing instructions" from different users. "You need to put things under central control," he says. "If [outsourcers] intuitively recognize no one is managing this sucker, they'll behave accordingly."

**Dwight Rodgers**  
Project officer at the Environmental Protection Agency



"Maintain the size of contractor staff and skill sets in a pretty steady configuration." Outsourcing contractors, just like in-house people, tend to be less motivated if they are thinking they may soon be out of work, he says.

Furthermore, by giving vendors enough advance warning of an impending dip or jump in job requirements, the EPA has enlisted their cooperation in "smoothing the workflow out, so the contractor feels it can rely on a steady stream of assignments," he says.

**Bruce Raynor**  
Project manager for EDS Blue Cross/Blue Shield contract



"Incorporate outsourcing staff into the organizational structure. If the work is a key part of your business strategy, then you should include the vendor in management decisions. Some of our customers even include an [EDS] representative on their executive team."

**Randy Johnson**  
Principal at Coopers & Lybrand



Provide annual reviews. Bring in a third party once a year to conduct an independent contract compliance review — or at least reserving the right to do so, he says.

**Wayne Bester**  
Manager of IT for Amoco Canada

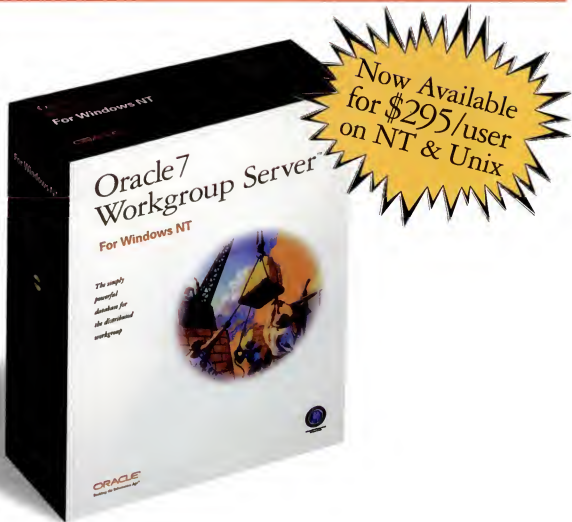


Don't nip/tick. Amoco Canada project managers kept disagreeing with MCI Systemhouse contractors over whether a series of small jobs were inside or outside the scope of the project.

Rather than continue to waste everybody's time, he offered to pay the vendor an extra \$5,000 to \$10,000 a month "if they would do everything we asked, instead of spending all this time arguing about nickel-and-dime stuff."



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Montague Institute: (413) 367-0245.

## When it comes to recruiting, mind your p's and q's

Showing a little courtesy now could lead to more prospects later on for both hiring managers and job hunters.

### By Frank Schoff

A growing number of job hunters and hiring managers today are not heeding Mother's call to exhibit good manners. Apparently thinking there is an abundance of job openings and good candidates, potential employees and hiring managers have blown any chance of eventually establishing long-term

oversights. But in every case, irreparable damage was done.

So if you want to land the best candidate, or get that dream job, remember to exhibit good manners and common courtesy. To help you do this, see the hints provided for people on both sides of the recruiting fence in the related stories on this page.

Admittedly, many of these tips may sound very basic, and to some degree they are. In fact, you may be one of those people who question why you even need to consider these points. After all, unless both sides come together in an employment relationship, most recruiting contacts are short term and casual, with a limited possibility of being renewed. So why worry about the consequences of blowing off a relationship that wasn't going anywhere?

There are three important reasons for employing proper etiquette.

First, showing recruiting

manners is a good practice. If you treat people with respect in the recruitment process, it will develop into a habit that can bring success in other areas of your life.

Second, even if the chance of renewing a recruiting relationship is slim, it's possible. If you're a job hunter, you may want to be considered for another opening within the company that just turned you away.

If you are an employer, you may want to hire an interviewee for a future position. Or, imagine this: You may want a job at a company where your potential future boss is a candidate you previously brushed off.

Finally, bad manners may come back to haunt you. If you

establish a reputation as a discourteous, disrespectful member of the tight-knit networking community, you won't be able to keep it a secret.

One final thought. All of these good-manners guidelines apply to recruiters, too. We are intermediaries who broker information and build relationships. We cannot do an effective job unless we subscribe to the same standards of courtesy and respect that are appropriate for the individuals we represent.

Schoff is president of Management Recruiters in Cedar Mountain, N.C. He specializes in the placement of networking professionals and can be reached at (704) 884-1118 or by fax at (704) 884-3512.



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relationships with each other. This has been the unfortunate outcome with a number of cases I have been involved in recently.

In some cases, the slights were deliberate; in others, they were

## Tips for hiring managers



Make sure you tell everyone who submitted resumes in response to your job posting know their status. A form letter or postcard is a good way to acknowledge receipt of a resume and to let people know when and if you will make further contact.



If you schedule an interview, be there at the appointed time and place. Don't make a candidate wait in the lobby for an hour or more while you deal with pressing issues. If you legitimately can't make it, ask someone else to meet with the candidate or reschedule the interview.



All candidates deserve to know their status within a reasonable time frame—say, three to five days. This is when you let candidates know you are no longer interested in them, that they are being considered but you are still interviewing, or that you want to schedule them for the next step. There is no need to provide a detailed reason for rejection. Letting someone know you are still interested could sway a strong candidate from taking a post elsewhere.



All candidates you told were still in contention should be informed of the ultimate outcome. You never know if you'll need to call them back quickly should the winning candidate not work out.

—Frank Schoff

## Tips for job hunters



Anyone who asks for additional information after you've submitted a resume in response to an ad, a recruiter's solicitation or a posting on the Internet deserves a response. This is true even if you've taken another job or postponed your job search.



When you agree to an interview, show up on time and be prepared. This applies to a telephone interview, as well. Just because you won't be face-to-face with someone doesn't mean you can blow off the call or fail to prepare. If you cannot make the interview as scheduled, advise the interviewer as far in advance as possible. If no advance notice is possible, call or e-mail the interviewer to explain what happened and to propose a new time.



Always send a follow-up letter after an interview. This lets you thank the interviewer for his or her time. It's also an excellent opportunity to reemphasize your interest in the job and highlight the skills you feel make you a strong candidate.



When you receive an offer, always respond to it quickly—within 24 to 48 hours. This seems easy if it's clear you want to accept or reject the offer. It's also a good practice when you want to negotiate further or request additional information but need more time.



When you accept an offer, it is considerate to contact your future employer a day or two before your start date to reconfirm when and where you're supposed to arrive. If you can't be there at the proper time, or won't be there at all because of a change of heart, be sure to advise your prospective manager as soon as you can. Failure to take this simple step could get you branded as inconsiderate, and this could get out to other potential employers.

—Frank Schoff

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and software data, evaluate the data and recommend the appropriate products to effect solid solutions. Requires solid data communications sales experience with large corporate accounts, excellent technical translation skills and the ability to make presentations to executive level decision makers as well as technical operations personnel. Must be willing to travel locally and some overnights, based on various locations of major accounts. **Dept. NWESR**

## PROFESSIONAL SERVICES

### Network Engineers

Washington, DC; Baltimore, MD; Richmond, VA; New York, NY; Detroit, MI; Chicago, IL

Implement network designs and install all network and related hardware. Configure network and system software bringing network to full operation. Provide staging and integration services and configure, set-up and test new products purchased at customer locations. Load IP addresses, optimize software configuration, develop router tables, and verify that equipment meets installation specifications. BSEE or BSCS with 5+ years' hands-on industry experience and excellent knowledge of network diagnostic tools. A baseline understanding of TCP/IP, RIP, OSPF, ATM, routing, Fast Ethernet, subnet masking, IP numbering schemes, and network segmenting also essential. Must be willing to travel locally and overnights on a regular basis. **Dept. KMAAM**

### Network Analyst

New York, NY; Atlanta, GA; Washington, DC; Ann Arbor, MI

Provide network design, integration and optimization services to customers. Perform network audits, traffic flow analysis and optimize designs to reduce broadcast traffic. Implement complex network numbering schemes. Perform redundancy/resiliency analysis and conduct migration planning. BSEE/CS with 7+ years' experience.

Strong knowledge of the OSI model with emphasis in layer 3. Requires experience in large scale network design and understanding of IP, OSPF, RIP, subnet masking, IP numbering schemes, router table designs, ATM, Frame Relay, IPX and switching. Must be willing to travel extensively both locally and overnight on a regular basis. **Dept. KMAA**

Hardware and Software Developer positions are also available for individuals with the following skills: ASIC design; VHDL; C/C++ programming; embedded systems; networking protocols; MIB; WIN32; Windows 95; Windows NT Agent software and Fast Ethernet.

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Please send a resume, referencing the department code, to Human Resources, Bay Networks, Inc., 3 Federal Street, Billerica, MA 01821; Fax (508) 916-3510; EMail: [baynetworks@earthcom](mailto:baynetworks@earthcom) (send mail text only). Please check out our web site for a complete list of openings: <http://www.baynetworks.com/corporate/employment/>. We are proud to be an equal opportunity employer.



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## Network World's Annual Power Players Issue.

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Your recruitment candidates, our readers, will refer to this issue all year.

Topics Covered: The Top 200 in the Industry, Company watch, The Power Brokers, Power Struggles, Top Users, The Network World Technology Planning Survey.

Close for recruitment advertising reservations is December 11th. Materials are due December 17th.

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TC/TP, NT, WIN, DECNET

Identify, evaluate and recommend new network technologies. Requires 5+ years' experience with design implementation of network configurations. Should be familiar with 10BaseT, RS232, 100BaseT.

### UNIX NETWORK SYSTEMS ADMINISTRATORS

Identify, evaluate and recommend new network technologies. Troubleshoot network failures and handle escalations as required. Recommend and implement network architectures and analysis tools. Requires 4+ years' experience with the design and implementation of network configurations. Should be familiar with the following: 10BaseT, 100BaseT, CDD, FDDI, ATM, RS232, V.35 and V.42. Network protocols should include TCP/IP and DECNET.

### SOFTWARE ENGINEER

Work with manufacturing and product line customers to define requirements for applications software, as well as deploy applications worldwide to support off-line engineering analysis. Requires solid experience in object-oriented analysis and design. Must have 3+ years' object-

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### APPLICATION ENGINEER

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Position provides network design planning, system engineering and sales support. Will assist customers in network design planning, recruitment efforts, and coordination of site survey/implementation, and will support managers with customer meetings, product presentations and RFP response. Requires BSEECS and 5-7 years of experience in advanced communications/networking, including routing, ISP systems, LAN/WANs, and client-server systems. Excellent communication skills essential. Travel required. (Code: KE2AHW)

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12/9/96	BUYER'S GUIDE: Relational Database Management Systems	DB EXPO, New York DATABASE & CLIENT/ SERVER WORLD, Chicago	11/27/96
12/16/96	LAN. Will VLANs really make managing/administering networks easier?		12/4/96
12/23/96	Power Players Issue: Network World 2000. Technology/Planning Survey (combo issue) Special Focus: WAN		12/11/96

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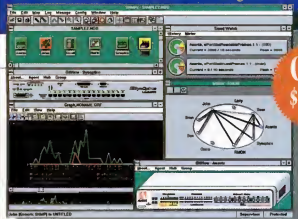
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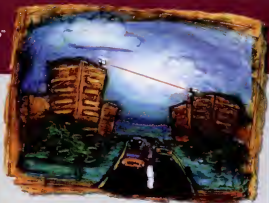
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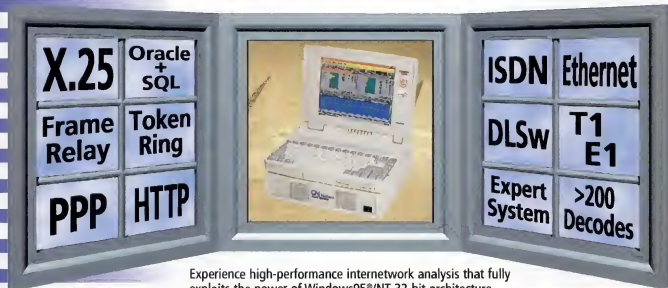
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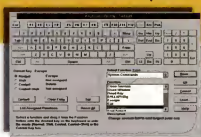
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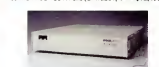


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## NT

Continued from page 1

egy will be Active Directory. It provides the underpinnings for the improved security service and has strong ties to the NT-based Microsoft Common Console (MCC), which is a new framework for managing distributed NT networks.

"We haven't developed tools for NT in the past because we deal with the enterprise, and the existing NT directory doesn't scale to fit that space," said Randy Bradley, chief technology officer of NetPro Computing, Inc., a Scottsdale, Ariz., firm that builds directory management software for NetWare and Banyan Systems, Inc. VINES nets.

"By building the new directory as a base service into NT, Microsoft may not be removing those enterprise barriers completely," he said. "But it is definitely raising the bar in terms of at what point NT management

becomes a complete mess."

Active Directory provides end users with a single logical capability for all network resources and is accessible to any client or application that employs the Lightweight Directory Access Protocol. It also supports Domain Name Service as a locator service as well as a variety of name spaces, such as Internet E-mail, HTTP, URL and X.500 addresses.

Active Directory provides a hierarchical view of all the objects stored within it and can be constructed to reflect the logical view of an organization. Allchin explained that setting up this directory in a distributed environment does not have to happen in a top-down manner.

"We have taken a grassroots approach that allows companies to establish directory services on a department-by-department basis, and then an administrator can use drag-and-drop tools to integrate them into a single

directory," he said.

Microsoft is providing backward-compatibility with Windows NT 3.X and 4.X, and NetWare 3.X and 4.X directory services through its Active Directory Interface, formerly called OLE DS. An integrated Active Directory Interface service provider for each legacy directory provides end-user access and limited management capabilities for administrators.

The new directory improves on replication services by letting every directory server replicate relevant changes to all copies. Previously, NT replication was based on a less efficient master/slave model.

Active Directory can be managed via a 32-bit Windows tool set that lets an administrator manipulate single objects, groups of users or entire directory trees. This application can run as a stand-alone tool or can be integrated into MCC.

MCC, previously known as

## Microsoft extends Java to Windows 3.1

Microsoft Corp. last week pledged to deliver Java support to its Internet Explorer 3.0 Web browser on Windows 3.1. To date, the Redmond, Wash.-based software giant has built Java Virtual Machine—software that lets Java applets execute in browsers—only for its Windows 95, Windows NT and Macintosh browsers.

But at the Professional Developers Conference, the firm demonstrated Java applets running in its Windows 3.1 browser and told customers to expect IE 3.0 to be available next month for download from its Website.

Microsoft delivered Java on Windows 95 and NT on Aug. 13, with the launch of IE 3.0. Java support in the Macintosh browser came last week.

Rival Netscape Communications Corp. has pledged to support Java in its Windows 3.1 browser, but has yet to ship it. IBM released the first Windows 3.1-based Java Virtual Machine in August.

"The fact that Microsoft was able to port the Java Virtual Machine, which is a 32-bit application, into Windows 3.1, a 16-bit environment, as quickly as they did is amazing," said Rob Enderle, an analyst with Giga Information Group.

—Carol Sliva

## Microsoft launches Active Server

Last week at Microsoft Corp.'s Professional Developers Conference, Active Server had its day in the sun.

Not your typical-for-purchase server software package, Active Server is a set of technologies that can be used to create server and Web server applications, making use of system services integrated into Windows NT 4.0 Server. Included are:

- Active Server Pages (formerly code-named Denali), a feature built into IIS 3.0 that enables developers to combine HTML and scripts (simple programs written with a scripting language such as Visual Basic script or JavaScript) to invoke server-based ActiveX components that can run business applications. The ActiveX components execute the business logic on the server, as opposed to the client or the HTML page, making it easier to modify applications.

- A transaction server, code-named Viper, that runs applications built from ActiveX components.

- Message queueing-based middleware, code-named Falcon, similar in function to IBM's MQSeries.

- The Distributed Component Object Model, a mechanism by which components on different servers communicate.

"Putting it all together, they've got an impressive set of services being made available for NT, but it's just for NT," said David Smith, a research director with Stamford, Conn.-based Gartner Group, Inc.

With Active Server Pages, developers should find it easier to add scripting to an HTML page, Microsoft said. Other advantages are in language independence, browser neutrality and just-in-time compiler that allows layout or content to be updated without having to manually compile it.

Developers can take an HTML page, add scripting to it using the language of their choice and, if necessary, make the scripting drive com-

ponents to perform business transactions. Scripts can detect what type of functionality the browser supports. Through Active Data Objects, users can gain access to any Open Database Connectivity-compliant database. In the past, Microsoft had provided database connectivity through its Internet Database Connector (IDC), but in order to use IDC, developers had to learn a new scripting language, said Jonathan Pereira, IIS product manager.

The Viper transaction server provides all of the low-level plumbing features—such as connection, thread and process managers, and automatic transaction support—that server developers often spent 40% of their time building, said James Utschneider, Microsoft group product manager.

A single-user component, written as an ActiveX Dynamic Link Library, is dragged and dropped into the Viper environment. Through Viper, many users can access the component simultaneously. Place call for applications to be able to scale to 100 to 200 concurrent users by next year, he said. For those wanting interoperability between applications built in Viper and the mainframe, a tool code-named Cedar can map an ActiveX application to invoke transactions on the mainframe.

Falcon is the server engine that queues messages. In the initial Falcon release, developers will explicitly have to program to use the message queues. But by the end of next year, Microsoft expects to merge Falcon and Viper so component developers can have their applications transparently executed in synchronous or asynchronous mode.

Viper is due out in the first quarter of next year, and Falcon, in beta now, is expected to ship by the end of June. Pricing and packaging has not been finalized, Utschneider said. Parts of Viper and Falcon technologies will wind up in NT 5.0. —Carol Sliva

Slate, is a customizable container for all NT-based, snap-in administration tools. MCC itself provides no management functions, but rather a common environment for all other NT administration tools to work within.

MCC is not a replacement for Microsoft's desktop management platform, Systems Management Server, said project manager Michael Emanuel.

## Playing it safe

The new NT 5.0 distributed security service, which provides both private and public key authentication, is also tightly linked with Active Directory.

This security model, based on the Kerberos authentication protocol, stores all user identification information and passwords in Active Directory. End users logging on to the network are authenticated once, and every time they try to access network services thereafter, their rights to do so are checked against Active Directory.

This model also supports the use of X.509 public key certificates for granting company outsiders who do not have Kerberos credentials access to network services. Active Directory allows X.509 security certificates issued by a trusted authority, such as the upcoming Microsoft Certificate Server, to be mapped onto Windows NT security groups. This mapping lets a non-Windows NT user with a certificate gain access to resources in the same way as a user with Kerberos credentials.

## THE MEMPHIS PROMISE

Microsoft talked about more than its server software last week, previewing its follow-up to Windows 95, code-named Memphis. The product boasts:

- ▶ Optional integration with Internet Explorer 4.0
- ▶ Improved performance
- ▶ Reduced administration costs
- ▶ A common device driver model with Windows NT
- ▶ The latest hardware support for OnDisk technology, Universal Serial Bus and advanced graphics buses
- ▶ Backward-compatibility with Windows 95 applications

cantly," said a net architect at a large international communications company looking at Active Directory to tie together the firm's six disparate NT domains, which support 60,000 users.

Overall, analysts at the conference were impressed with Microsoft's NT efforts.

"I am encouraged about NT's chances in the enterprise because, from what I saw, these new services make handling distributed assets a lot like managing a centralized mainframe environment," said Rob Enderle, an analyst with Giga Information Group in Santa Clara, Calif. ■



## BT-MCI

Continued from page 1

ing at least the outward structure of the long-distance and other telecommunications markets.

Other moves include the merger of LIDS WorldCom and MFS Communications Company, Inc., and two regional Bell operating company unions that could help the local carriers expand into full-blown long-haul services (see graphic).

Even more deals — particularly international ones — are expected in the months ahead, given that the global long-distance market is growing faster than the domestic market.

But experts said the first

impact of the BT-MCI transaction — if approved by the Federal Communications Commission — communications companies on the U.S. local services market.

It could give MCI the funds needed to expand its local presence "at a time when AT&T is having a hard time making money at its core business, much less competing in new marketplaces," said Traver Kennedy, director of WAN research worldwide for Aberdeen Group, Inc. in Boston.

Many long-distance carriers may be forced to enter the local market with their own facilities, rather than leasing parts of RBOCs' networks or reselling

RBOC services. AT&T has banked on being able to resell RBOC local services, rather than building its own networks quickly. But prospects for speedy entry into the local marketplace through resale dimmed after the FCC's implementation rules were stayed.

AT&T has to worry about BT and MCI in other areas, as well. BT and MCI combined — as Concert — will be able to compete for the kinds of telecom service business that once only AT&T had the scope to compete for, said Eric Paulak, an analyst with Gartner Group, Inc. in Stamford, Conn. "MCI can force the issue, and AT&T will have to break them on price," he said.

## Waiting for a change

But with MCI's intentions not fully known, corporate network managers are starting to feel merger fatigue with the carriers. East Coast users cite the frustrating example of Bell Atlantic Corp.'s proposed takeover of NYNEX Corp.

When the RBOC megadeal was announced in April, Bell Atlantic Chairman and Chief Executive Officer Raymond Smith promised that NYNEX's notorious service installation problems within a year. But users last week said that with more than half the time elapsed, they have seen no sign of improvement and little or nothing about how the combined RBOC would operate in the future.

"Everybody wants to know what's going to happen to their account teams and how [the merger] is going to affect their services," O'Brien said. "We don't have any answers to those questions."

Some experts said that despite the blockbuster RBOC deals, the balance of power may well still be in the hands of traditional long-distance carriers.

RBOCs have plans to resell long distance out of region and are expanding into the international market with investments in European post, telegraph and telephone administrations. But they are stuck in the starting gate until they get permission to sell long distance in their territories — something that will not become a reality until next year.

Others — such as MFS WorldCom — may already be ahead of them.

The MFS WorldCom merger — which could gain stockholder approval by year-end — could result in the first carrier to offer true bundled local and long-distance service, said user attorney

## LONG-DISTANCE SHAKE-UP

	Restructuring activity	Outlook
AT&T	Has spun off NCR hardware group; is spinning off NCR computer division	If it can overcome the inertia of doing what it wants at its own pace, AT&T has the size, and owns the network, to continue its dominance. BT's bulk and presence around the world, combined with MCI's technical expertise and innovation, could create a powerhouse.
MCI	To be acquired by BT	Bundled local, long-distance and Internet access on all fiber networks it owns could be attractive if integrated well. Half ownership in a new trans-Atlantic cable and approval to expand European networks add to the possibilities.
MFS-WorldCom	Merger	GlobalOne services under way and nationwide wireless PCS network building out. But deal to build wired local loops with cable carriers has fizzled.
Sprint	GlobalOne joint venture with France Telecom and Deutsche Telekom	With ownership of local network infrastructure, they are poised to move quickly to bundle local service with resold long distance service, but must wait for permission to sell it in their own regions. Some already sell long distance out of region.
RBOCs	Bell Atlantic and NYNEX to merge; SBC and PacificTel to merge; US West to buy Continental Cablevision	With ownership of local network infrastructure, they are poised to move quickly to bundle local service with resold long distance service, but must wait for permission to sell it in their own regions. Some already sell long distance out of region.

Hank Levine, partner in the law firm of Levine, Blazsak, Block and Boothby.

"BT and MCI are poised to go into more markets" than the RBOCs, Paulak said. Internationally, the combined company will own links on both sides of the Atlantic with a presence in 72 countries.

Observers said customers should not be surprised that new legislation and industry upheaval have failed to result in massive changes for them.

"Users were like the fair maiden at the jousting tournament," Levine said. "They were fought over but not really part of the action." ■

## BT and MCI: Couldn't hurt global effort

They do not think it will have a dramatic impact immediately, but users figure the merger of MCI Communications Corp. and British Telecommunications plc can only make it easier to build global networks. They already operate the Concert joint venture, set up to provide multinational voice and data services via a single point of contact. But users said the integrated support and billing systems from Concert and rival global ventures have not lived up to their advance billing.

"There really is no one-stop shopping today," said Michael McKenna, director of network services for American International Group Data Center, Inc. in Livingston, N.J. "We'll sit at a table with folks from MCI and BT, and the first thing we have to do is introduce them to each other."

McKenna, whose organization is an affiliate of the AIG insurance companies, said he has similar issues with AT&T. AIG's contract for international managed AccuWAN data services and most trouble tickets are opened by his own staff.

The deal's biggest impact may be to light a fire under AT&T, users and analysts said. BT and MCI's announcement of a merger, rather than an alliance, will force AT&T to arrange for local support in multiple countries, said Eric Paulak of Hank Levine, partner in Levine, Blazsak, Block and Boothby. "Now it's 'I'll do my best to get the Dutch to get it done,'" he said. But with BT-MCI able to provide one-stop shopping, "they'll do it themselves."

George Hallenbeck, senior telecommunications analyst for Marsh & McLennan, Inc. in New York, agreed. He's worked with both the AT&T and MCI global alliances. "I think the [merger] is good because of the effect it will have on competitors," Hallenbeck said.

—David Rohde

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## A Brit declares: Give me Telecom or give me death!

**A**s I confessed in a previous column, I'm an escapee from Britain. I've been living in Southern California for just over six years, and I love it. (toften seems that there are more Brits in SoCal than any other alien life form, but I digress...)

So being a Brit, it was with great interest that I learned of British Telecom communications plc's plan to acquire MCI for some \$21 billion. This will create an entity that operates in more than 70 countries and has a gross annual revenue of around \$35 billion.

ASTounding! My first thought was, "How can BT afford that?" My second was, "Duh. Don't you remember how much phone service costs in the U.K.?"

For the first time in the global marketplace, we have a potential competitor to AT&T. In the Edupage® E-mail bulletin I just received, an analyst is quoted with the pithy comment, "Now you have another global gorilla."

But hold hard! Is this really a good idea? At the heart of my concerns is allowing the control of a major U.S. telecommunications company to slip into the hands of a foreign company, albeit one from a friendly nation.

It seems that if we allow the acquisition, we will be showing that we neither understand the importance of our telecom infrastructure nor value it. And I don't mean value as in putting a dollar value on it (obviously, in the case of MCI, \$21 billion covers its value adequately).

We should understand that telecom is the lifeblood of our commercial future. Without an effective communications infrastructure, there would be no consumer online anything worth talking about and the evolution of corporate IT would be seriously hampered. We should value telecom as our competitive edge, a prime differentiator between the U.S. and the rest of the world.

Now I don't agree with the way the FCC handles telecom regulation—indeed, much of the time, the agency acts as a flawed, overly political and shortsighted organization. (I think the voice-over-the-Net fiasco pointed out these deficiencies very clearly.\*\*)

But if the FCC allows this deal to happen, it is giving away our future. It would

*If we allow the acquisition, we will be showing that we neither understand the importance of our telecom infrastructure nor value it.*

be placing a key part of our economic infrastructure in the hands of a multinational whose objectives would be driven by commercial interests rather than in the interests of America. (OK, I know all companies are driven by commercial interests, but BT won't operate in the same national context as an American company like, say, AT&T.)

Make no mistake, if BT acquires MCI, it will not be to the benefit of U.S. commerce and, therefore, not in the interest of the American people. Besides, with the political clout BT would then wield, the Brits might just ask for their tea back.

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\*\* In case you missed it, the voice-over-the-Net fiasco started in March when a number of telcos, speaking through the American Carrier Telecommunication Association, petitioned to get the FCC to ban Internet telephony software.

While the FCC usually takes its sweet time over such petitions, it acted with surprising speed in getting this one on the docket. The whole fracas simply fizzled out, but it was quite clear the FCC was swayed by the political muscle of ACTA.

Do you think the acquisition is a good idea? Write me at mgibbs@gibbs.com or call on (800) 622-1108, Ext. 504.



Mark Gibbs

## How a lowly API is changing life in the networked world

**D**uring the mind-numbing blur of elections last week, most of us missed the significance of a key technical announcement that will change users' and network managers' lives.

The apparently dull news was (drum roll) a new version of the WinSock API. It sounds arcane, but consider this: WinSock is one of the most important factors behind the relative ease of Internet connectivity enjoyed by millions of people.

More important, WinSock 2 could be the magic ingredient that dramatically accelerates the use of networked multimedia applications and fast LANs based on ATM.

Why the fuss about an API? WinSock stands for Windows Sockets, which are communications endpoints allowing applications to talk to each other over a network.

WinSock is included in Microsoft Corp.'s Windows 95 and NT. It lets developers create networked applications without worrying about particular transport protocols. WinSock also lets network protocol and infrastructure

technologies, Inc., which provides interoperability testing for makers of networking products.

According to Hall, there is no way that millions of new Internet users could have so easily jumped online without WinSock. (Microsoft's inclusion of TCP/IP with Windows 95 and NT helped, but that is another story.)

WinSock 2 promises a broad range of benefits that will dramatically expand the need for high-speed networks.

For starters, transport protocol support now includes TCP/IP, IPX, DECnet and ATM. ATM support is largely due to Microsoft's licensing of FOR Systems, Inc.'s Forethought ATM LAN Emulation Client software, which will be added to Windows 95 and

NT next year. Users will be able to select "ATM adapter" from a pick list, making it more difficult to install any ATM network than Ethernet.

By writing to WinSock 2's interface, application developers automatically use the directory service of their choice. That's because Domain Name Service, SunSoft's NIS/Yellow Pages, NetWare Directory Services and Lightweight Directory Access Protocol comply with

WinSock 2.

The new API also allows system and infrastructure vendors to supply value-added services, such as security, authentication, virus checking and Internet filtering.

Finally, WinSock 2 provides three quality of service levels: guaranteed, predictive and best effort. These allow applications to request bandwidth to fit their needs—crucial for time-sensitive apps like videoconferencing and manufacturing control systems.

These elements are the missing key to enable a new class of networked multimedia applications. People will begin to clamor for these tools once their use becomes as simple as installing a browser. See [www.startstud.com](http://www.startstud.com) for more information on WinSock 2.

Meanwhile, network managers shouldn't sit still. This obscure-sounding API will make your professional life easier. Vendors say product support is coming in 1997.

Let them know you want WinSock 2 fast. The difference is worth it.



Dave Buerger

*WinSock 2 could be the magic ingredient that dramatically accelerates the use of networked multimedia applications and fast LANs.*

suppliers build products without concern for applications. The result is simpler connectivity and application use for everyone.

Before WinSock 1.1 was released in early 1995, network managers worked harder to make Windows applications run over TCP/IP. They had to choose applications that would run on specific versions of TCP/IP. Coordinating application with protocols was a mess.

People now benefit by buying whatever they want, provided it is WinSock-compliant.

There are tens of thousands of WinSock-compliant applications, according to Martin Hall, chairman of the WinSock API group. Hall is also chief technical officer and cofounder of Stardust Tech-

Buerger is a networking industry consultant and writer in Atlanta. He can be reached at [dave@buerger.com](mailto:dave@buerger.com).



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